U-ETR BACKUP

TRAINING TECHNIQUES FOR END USERS

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U-ETR

TRAINING TECHNIQUES FOR END USERS

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I

I INTRODUCTION

- Essentially, competitive pressures necessitate productivity/effectiveness enhancements and companies are increasingly turning to a variety of computing resources such as personal computers and word processors which can be used DIRECTLY by all levels of employees within the organization.

- The IBM PC in combination with such software as Visicorp's VisiCalc is bringing direct computing power to executives, managers, professionals and their support staff. These and other microcomputers have begun to address end-user(s) needs for business computing, but in doing so have created another problem--they put a strain on the IS support services, already overburdened with system development backlogs. These new users need help in learning how to use their microcomputers and in applying the software to their tasks. While many of the software programs look easy to use, training is still needed in order to take best advantage of them.

- The same is true of other arenas of end-user computing--specifically, the use of terminals connected to mainframe resources--and the use of the classic word processor. End users can achieve greater effectiveness in their use of computing resources with training which speeds their time to effectiveness.

- In their attempts to support end users, the IS organization has avoided training. IS has left training to the vendors, but vendor training has been inadequate. The result has been inefficiency and dissatisfaction.

- This report on techniques for training and users examines successful training and evaluates these training resources. It will be an invaluable resource to assist IS staff in developing end-user training programs.

A. OBJECTIVES, AUDIENCE, AND USE

- The objectives of this report are to:
  - Identify issues and requirements for end-user training.
  - Identify and evaluate training sources and techniques.
  - Recommend strategies to develop end-user training programs.
- The audience for this report is:
  - IS management and their staff currently involved in end-user training and support.
  - Human Resources management and staff responsible for training and development.
  - End-user management.
- The report can be used by IS and those responsible for providing end-user training in the following activities:
  - Identifying and assessing training sources and techniques.
  - Developing a training strategy.
  - Discussion of training issues and approaches.

B. SCOPE AND METHODOLOGY

- This report covers initial and on-going training and support for end users of personal computers, personal workstations, word processing, office systems and mainframe computing provided by IS. The report will focus often on the end users of personal computers because generally this is the arena of greatest growth of end users and making the users of these tools more effective will result in great gains to the organization since they are primarily managers and professionals. Also, the training issues are similar in general to other end-user products.

- The report excludes discussions of technical/operational training of technical staff such as programming or systems development training for the data processing staff.

- The report does not recommend specific services or products. Profiles of service vendors and products are, however, provided but these are not intended as recommendations.

- The report is based upon interviews with manufacturers of end-user products, training services, training consultants, and managers within user organizations responsible for end-user training; and also on an extensive literature review and analysis.

C. ISSUES OF TRAINING

- The issues which will be addressed in this report to assist INPUT's clients in developing a training approach are:

  - Who are the end users ~~requiring~~ who require training? What are their characteristics and what are their existing skill levels? Are they afraid of computers? What are their expectations about computing capabilities?

- What are the goals and benefits of training?

- How do you assess training requirements?

- What are the costs of training and how is training cost justified? Are there any measures of training effectiveness?

- What are the sources and techniques of training and the pros and cons of each?

D. REPORT ORGANIZATON

o Chapter II is the executive summary in presentation format and supplementary discussion.

o Chapter III covers the goals and benefits of training.

o Chapter IV covers five ways of categorizing end users:

- By job level.

- By function (or department).

- By information handling function.

- By requirement for a specific information handling tool.

- By skill level.

o Chapter V discusses how to assess training needs and how to justify training costs. It includes a cost/benefit analysis discussion.

o Chapter VI discusses the suppliers of end-user training and the major pros and cons of each. These sources of training are:

- Manufacturers of hardware and software.

- Training services and training package vendors.

- In-house resources such as IS staff, the Information Center, and the Human Resources staff.

o Chapter VII covers the techniques used by the various suppliers, their advantages and disadvantages, and an evaluation of the effectiveness of each in meeting training goals. The techniques covered are:

  - Traditional one-on-one and classroom training.

  - Technology-based techniques using the computer (computer-based training) and other media.

  - Adaptive techniques which induce the use of peer trainers and the learning center approach.

o Chapter VIII contains conclusions, guidelines on developing a training strategy, and recommendations.

o The appendix contains references to additional resources on end-user training.

E. RELATED INPUT REPORTS

o Interested readers are referred to the following INPUT reports:

  - Executive Workstation Acceptance: Problems and Outlook (April, 1984).

    . This report identifies executive computing requirements, analyzes products and recommends executive computing support strategies.

- Supporting Personal Computer Software (August, 1983).

  . This report describes the planning and organizational issues of personal computer software support. It also provides a guide to maximizing the benefits of personal computer software.

- Organizing the Information Center (July, 1983).

  . A key issue is,to what extent is the Information Center complementary to, or an alternate of, the personal computer?

- End-user Experiences With Fourth-generation Languages (August, 1983).

  . Can fourth-generation languages help make the centralized mainframe competitive with the PC?

  . What role will current, or future, fourth generation languages have on PCs?

- Personal Computers Versus Word Processors: Resolving the Selection Dilemma (June, 1983).

  . Compares and contrasts PC and WP roles in the office environment for today and the future.

II EXECUTIVE SUMMARY

- Editor's note: This executive summary is designed in a presentation format in order to:
  - Help the busy reader quickly review key research findings.
  - Provide a ready-to-go executive presentation, complete with script, to facilitate group communications.
- The key points of the entire report are summarized in Exhibits II-1 through II-7. On the left-hand page facing each exhibit is a script explaining that exhibit's contents.

A. WHY TRAIN AND WHAT ARE THE ISSUES?

- This report is a part of INPUT's End-user Systems Program.
- The goals of end-user training are threefold: Computer literacy—to develop an awareness of the basics about computers; Skill--to develop skill in operation of hardware and software; Adaptation—to develop an ability to apply new technology to business needs on an on-going basis.
- The primary benefits of end-user training are to reduce the learning curve of new users and to achieve the benefits of the technology so as to achieve a faster return on investment.
- The first issue or problem to address in providing training is that there are a variety of users for a variety of equipment with different characteristics, attitudes and fears about computers, and different skill levels. The second issue to resolve is who is to provide the training, where will it be provided, and what is the best technique? Finally, what are the cost considerations?
- This INPUT research report is designed to help address the issues and achieve the benefits of end-user training in a cost-effective manner.

B. IDENTIFY THE AUDIENCE AND THEIR REQUIREMENTS

- The first step in the needs assessment is to define who to train, their current skill level, and what are the necessary skill and knowledge requirements.

- Since people of various levels work together to achieve their objectives, training aimed towards achieving departmental objectives by applying new technology is also important.

- End users to be trained can be categorized by their organizational level. This categorization is useful to match against training requirements which meets one of the goals. Executives benefit from computer literacy training; Managers benefit most from skill training on specific tools and computer literacy training. Professionals benefit most from skill training to facilitate their adaptation ability as do secretarial/clerical staff.

EX II-2

- Requirements can also be defined based on the need to learn how to operate and apply a specific tool such as word processing, spreadsheet, data base management, communications and graphics.

C. SUCCESS MEASURES FOR TRAINING?

- Success measures should be defined for training in order to determine whether the training source and technique chosen is effective.

- Examples of success measures are time to achieve competency, reduced error rates for transaction systems or word processing documents, increased typing speed, reduced time to create a budget or forecast, and reduced need for IS staff to provide hand-holding support.

- These success measures can most effectively be defined by the end users who ~~requiring~~ REQUIRE training.

- Their needs and success measures can ~~most effectively be defined by the end users requiring training.~~ BE ASCERTAINED VIA INTERVIEWS, SMALL GROUP DISCUSSIONS, AND SURVEYS OR TESTS.

EX 11-3

- Whatever measure is chosen, an attempt must be made to assign a value to the measure because this will be the offsetting benefit to be compared to the cost of training. For example, an increased typing speed will reduce the cost of preparing a document. Reduced time to prepare a budget means that more time will be available for analysis of alternatives. Reduced time to competency on a system means that the benefit of the system can be achieved more rapidly.

D. TRAINING ~~SUPPLIERS~~ SOURCES ~~EVALUATIONS~~

- The hardware and software manufacturers are the first source of training, particularly word processing manufacturers, integrated office system manufacturers, personal computer software manufacturers, and system integrators. Manufacturer training is appropriate for initial skill training, for training in-house trainers, and for executive-level computer literacy.

- Training services and consultants can be very knowledgeable about training techniques and can effectively assist in computer literacy and skill training They are particularly appropriate for executive computer literacy and for training in-house trainers. They are an alternative to developing training resources in-house so as to avoid dedicating personnel to develop and teach courses which may be appropriate until your company selects standard systems and standard end-user software packages. They are not effective to develop adaptation skills.

EX II-4

- A growing number of companies offer independent study training material only, with the most typical package being computer-based training. These self-paced packages are improving and should be made available as an in-house resource to develop skills ~~in~~ FOR a specific tool.

- In-house resources include the IS staff or the Information Center, and Human Resources training and development staff. They are best for enhancing THE staff's ability to adapt technology.

E. TRAINING TECHNIQUES

- The one-on-one technique is the most adaptive to each individual's specific needs, but is too expensive to train large numbers. It is an excellent way to train executives if the trainer is knowledgeable about the use of personal computers, can convey how to operate THEM, can assist the executive in applying them to meet specific needs, and can mesh with the executive's personality and style. It is very good for follow-up training.

- Workshops are cost-effective for larger numbers of trainees, particularly when there is hands-on access in addition to lecture. The best workshops provide minimal concept, maximum hands-on experience, and an opportunity for the trainee to engage in question and answer time with the trainer. The hands-on portion is best when some actual problem which the trainee needs to address can be solved.

- Technology-based techniques--computer-based and multi-media-based training are cost effective, adaptive to individual needs, and builds hands-on experience with the computer system. Other media ~~is~~ ARE effective if ~~it is~~ THEY ARE tailored to the end-user's needs. Multi-media techniques provide an excellent, cost-effective way of introducing an end-user to new technology, but they require additional audio and video equipment and this equipment must be learned as well.

  EX 11-5

- Adaptive techniques such as peer training and the learning center concept are the best techniques to assist trainees in achieving an ability to adapt or apply new technology on an on-going basis.

F. TRAINING COST CONSIDERATIONS

- When comparing costs of one training source or technique over another, there are a number of considerations.

- During the training the employee is unavailable, so length of training is critical.

- Off-site training requires travel and subsistence and usually longer periods of time away from the job than on-site.

- Costs for on-site training includes space and other facilities, instructor and on-going support personnel salaries and benefits, and equipment (hardware, software, communications, manuals, etc.).

- Costs for computer-based training are for hardware, software and communications.

- Other media-based training requires special equipment and facilities.

EX II-6

G. ESTABLISH A TRAINING STRATEGY

- Use the needs assessment methodology as outlined in this report. Define your end users both by their functional/departmental responsibilities and by the specific tools needed.

- Have the end users define their own measures of training success.

- Use as much manufacturer-supplied training as is available with the cost of the system. Have at least one person trained on the new system who can then provide training in-house. Ask for a customer service representative to be on call.

- Develop an in-house end-user training resource. Training is an on-going commitment and in-house resources know the company culture, departmental and individual needs for computer systems.

- Assign someone the responsibility for end-user training and have that person report ~~as high as possible, probably~~ to the senior executive in charge of IS.

EX 11-7 ✓

- If there is not already an Information Center, establish one. Allow it to serve as a learning center where staff can come with problems to solve and meet with their peers and a training consultant.

H. CONCLUSIONS

- The most effective training approach is that which supports trainees in developing an ability to adapt technology on an on-going basis.
- Training courses are targeted to meet specific business and end-user needs.
- The training is tied to the company's way of doing business.
- Actual cases or problems are used in training sessions.
- The overall training program is constantly being assessed and courses fine-tuned to insure that end-user's needs are met.
- THE TRAINING PROGRAM ~~It also~~ includes managers as trainers.
- Training is one of the highest-leverage activities a manager can perform. By increasing individual capability, a manager can raise the level of individual performance of his or her subordinates and thereby increase the overall performance of his department or division.

EX 11-8

III

III WHY TRAIN? THE GOALS AND BENEFITS

A. GOALS OF TRAINING

- There are a variety of end users who can benefit from directly using computers such as the executive, professional staff, and clerical personnel. Ways of categorizing them will be discussed in the next chapter. End users benefit from different types of training identified by the goals of training. The three goals of training which follow will be used throughout this report in evaluating training sources and techniques.

1. TO ACHIEVE COMPUTER LITERACY

- This is a term frequently used to describe the basics (concepts and vocabulary) that noncomputer users (particularly managers and executives) need to know about computers. Once managers and executives achieve an understanding ~~about~~ of computers, they will be more amenable to promoting computer use.

- The purpose of computer literacy education and training is to:

  - Reduce fear of computers.

  - Build awareness of the impacts of technology.

  - Assist managers and executives to make decisions related to hardware and software acquisition and use and to help them become proficient enough to manage others who use computers.

- Identify and resolve issues of responsibility and control over end-user computing resources.

2. TO DEVELOP SKILLS

o THE A second goal of training is to give hands-on experience to users so that they learn how to OPERATE new technology (become skilled). Skill training is product-specific--oriented to developing skill on a particular personal computer, word processing system, or on a particular software package. This type of training would build skills in keyboarding, equipment operations and hardware/software functions.

3. TO PROMOTE ADAPTATION

o Finally, training should assist end users to learn how to apply or adapt the new technology to achieve productivity and effectiveness gains on an on-going basis. This type of training will enable users to develop new uses and procedures that promote the organization's mission. In this training users would be exposed to what data is available and how to manipulate it for effectiveness on the job. This training is not necessarily product-specific.

B. BENEFITS

o Training is mandatory in our fast-changing technological environment and may contribute to our employees staying employed. Those who keep up with change are valued employees. But rather than having new users read a manual or be given a demonstration on how to operate new technology, there is greater effectiveness to be achieved by developing a well-planned training approach. This approach will achieve the following primary benefits:

- Reduce the learning curve, or time to effectiveness of new users. For example, several respondents said that with formal training, clerical staff learned how to use a word processing system and achieve some proficiency two or three times as fast as those who had no formal training.

- Assist in achieving the benefits of the technology, thereby achieving a faster return on investment.

o In addition, computer literacy develops a common understanding about computers among end users. It enhances professionals' skills by providing an understanding of how their personal computers (and other technologies) operate and can be applied to make them more effective. And it creates an environment in which end users more readily accept standards for the implementation of microcomputers, software packages, and communications.

o A side effect of a well-planned training approach is that, while making users more self-sufficient, the support requirements of IS are reduced because it reduces the number of questions the IS department must answer. Training also reduces errors in transaction systems which must be maintained by IS staff.

o Finally, the process may increase interdepartmental communication and employees' interest in work, and may serve to increase employee involvement in improving the business and make them aware of the impacts of technology on their jobs and on the organization.

IV WHO ARE THE USERS?

- According to the user respondents in our survey, the end users ~~requiring~~ WHO REQUIRE training can be categorized in a variety of ways, including by organizational level, by function, by information handling function, by requirement for a specific information handling tool and by skill level. These categorizations have implications for the training techniques to be used.

A. ORGANIZATIONAL LEVEL

- End users ~~requiring~~ WHO REQUIRE training can be categorized by their job level:

1. EXECUTIVE MANAGEMENT

- Key decision makers can benefit from access to timely and accurate information to meet business objectives. But because their day-to-day activities are relatively unstructured, unpredictable, and not very repetitive, their discretionary time they have available for education and training is very limited. Further, they have the least exposure to keyboards and software packages. And the executives are scattered through an organization.

- Executives benefit most from computer literacy education so that they can make decisions related to hardware and software acquisition and use not only for themselves, but for their employees. ~~They need to be able to see how computers or technology will impact the "big picture" according to one survey respondent,~~ EXECUTIVES AFFECT SEE BELOW

ACCORDING TO ONE SURVEY RESPONDENT, EXECUTIVES NEED TO BE ABLE TO SEE HOW COMPUTERS OR TECHNOLOGY WILL AFFECT THE "BIG PICTURE".

- In providing training for executives, it is crucial ~~that~~ when a trainer is used, ~~the~~ THAT person have credibility to an executive audience. At a minimum, comparable experience and a professional presentation establishes credibility. The trainer must also be sensitive to the executive's image--they do not wish to appear dumb.

- Courses or other techniques should be short and self-contained. One respondent had developed computer-based training for an in-house time sharing service. Each segment took approximately 20 minutes to complete.

- The contents of whatever technique is used must always emphasize the payback for the executive's time. Executives will spend some time to be trained if it is clear that, as a result of spending their time, a benefit has been achieved. Each training session must have a clear objective.

2. MIDDLE AND FIRST-LINE MANAGEMENT

o Much of the current personal computing products have been directed toward providing middle and first-line managers with information and information handling tools helpful in controlling and directing the day-to-day operations of the organization. The specific applications predominant for these end users are in accounting, inventory, personnel, marketing, and manufacturing. Specific tools for these end users are:

- Spreadsheets.

- Modeling tools.

- Graphics.

- Time and project management aids.

- Communication facilities.

- These managers, in order to maintain productivity in the areas for which they are responsible, will need to achieve skill in operating the technology and an ability to adapt and apply the technology on an on-going basis. ~~Further, e~~ ~~ideally~~ they should be able to answer questions of their staff. Consequently, training for managers will need to be in-depth and aimed at developing skill, in addition to providing information for them to become more aware of the computer's potential so that they can envision on-going opportunities for its application. They also need information on other training resources to pass on to their staff.

3. PROFESSIONAL AND TECHNICAL STAFF

- Professional workers perform activities in support of their managers and executives. Their work is unstructured. They themselves have minimal administrative support, so they are most amenable to the introduction of tools to support them. They are often highly self-motivated and often have had experience using technical tools in their work, so they will most easily adapt the tools.

- Training for professionals should emphasize enhancing their skills in operating the technology, and in providing guidance in how to specifically apply the tools to their specific function (accounting, engineering, analysis, etc.).

4. SECRETARIAL AND CLERICAL STAFF

- The word and text processing industry has selected the secretarial/clerical role as the first candidate for automation in the form of improved text creation~~, and~~ editing ~~and~~ data entry and maintenance. More recently, tools to assist with filing, mail, calendars, scheduling, telephone management, and distribution have been introduced.

- Training for secretaries and clerical people should be geared primarily towards developing skills in a specific application such as word processing, billing, or records maintenance. Training should be provided by skill level--novice, trained and adaptive.

B. FUNCTION/DEPARTMENT

- End users of various levels could also be categorized in terms of their training requirements by their departmental or functional responsibilities (e.g., marketing, human resources, etc.). Since people of various levels work together to achieve their objectives, training aimed towards achieving objectives by applying new technology will be important. This categorization will be increasingly important as vendors provide products which are functionally oriented.

- A functional categorization includes:

  - Administrative:

    - Human Resources
    - Controller/Finance/Treasury
    - Marketing and Sales
    - Legal/General Counsel
    - Real Estate
    - Purchasing
    - Taxation
    - Audit
    - Credit
    - Public Affairs and Communications

- . Regulatory Affairs
- . Research

- Operations:

  - . Manufacturing (Technical Service, Engineering, Material Control, Inventory Control, Scheduling and Expediting, Quality Control, Major Product Groups, etc.).
  - . Retail (Merchandising, Catalog Sales, Distribution, Traffic, Store Planning, Market Research, Purchasing, Remittance Processing, etc.).
  - . Banking (Branch Operations, Consumer Services, Corporate Banking, Financial Services, Trust Services, Investment Services, etc.).
  - . Insurance (Billing, Policy Issue and Maintenance, Claims Processing, Premium Accounting, Loss Control, Underwriting, Rate and Quoting, and Products such as Life, Annuities, and Commercial, etc.).

C. INFORMATION HANDLING FUNCTION

o Because the tools which are currently offered are still ~~primarily~~ being generally applied, it is easier to categorize the functional requirements by the information handling requirements of each area. The general information handling requirements are:

- Document processing.
- Numerical analysis.

- Information retrieval/manipulation.

- Communication.

- Presentation aids.

o See Exhibit IV-1 ~~INFORMATION HANDLING REQUIREMENTS BY FUNCTION~~ for A SAMPLE OF INFORMATION HANDLING REQUIREMENTS ~~the detail requirements for a representative sample~~.

EX IV-1

o In providing training by information handling function, a conceptual overview is appropriate in addition to training in how to operate and apply specific tools.

D. REQUIREMENT FOR A SPECIFIC INFORMATION HANDLING TOOL

o If we translate the information handling requirement to specific information handling tools, we can then offer specific training for the tool. This was the user categorization most often cited by survey respondents. These respondents saw value in not differentiating users by level but rather offering courses where the levels could meet and learn together. They provided training in a specific tool on a departmental basis.

o ~~See~~ Exhibit IV-2 ~~NEED FOR INFORMATION HANDLING TOOLS AND TRAINING BY FUNCTION. This exhibit~~ shows the tools most needed in several departments. Training resources for specific tools can be applied most effectively in the departments with high or medium need for a tool.

IV-2

E. SKILL LEVEL

o Regardless of how we categorize end users--by job level, function, or tool required, we must also categorize them by their current skill level. The types of training provided should take into account whether the user is:

- A novice--has had no contact with computers. May believe they have no technical aptitude. May believe that computers are a threat. The novice category also includes the casual computer user who will operate a workstation only infrequently and will quickly forget how to operate equipment.

- Trained--Has used computers, and has had training to develop some skill to operate the computer.

- Adaptor--Uses computers, may have been trained or trained themselves, and adapts the technology on an on-going basis.

o In conclusion, in developing a training approach the end user can be characterized by organizational level, department or skill level, or by requirement for knowledge and skill of an information handling function or a specific tool.

V

V HOW TO ASSESS TRAINING NEEDS AND JUSTIFY TRAINING COSTS?

- In order to provide the most cost effective training to achieve the goals of training, a needs assessment is necessary. The alternative is to assume that everyone requires training. But a well-planned training approach will match specific needs of users to specific training sources and techniques.

A. NEEDS ASSESSMENT

- The following steps, pictorialized in Exhibit V-1 ~~NEEDS ASSESSMENT PROCESS~~, to define end-user training requirements, can be followed by IS staff, training staff, and/or end-user management. The purpose of a needs assessment is to define training requirements and the objectives of the training.

1. AUDIENCE AND JOB TASK ANALYSIS

- Defining who to train and what the necessary skill and knowledge requirements are the first steps.

- The previous section may give you some ideas about who is the end user in your organization. Along with this analysis is the identification of the skills the intended target audience require to perform their jobs activities. Attention should be paid to job responsibilities and the experience level of the people for whom the training is intended.

- Success measures should also be defined. For example: Typing speed improvements, reduction in error rates, or an increased number of market forecast scenarios. These success measures must be determined ~~by~~ FOR each organization by the end users themselves. The Benefit section of Chapter III-B ~~C~~ may also provide insights on possible measures.

- The types of questions appropriate to ask of the potential audience include:

  - What ~~do they~~ does the do?

  - What do they think the computer is going to do for them and when?

  - How do they feel about computers--excited, afraid, interested?

  - How do they feel about their ability to learn something new and possibly complicated?

  - How much exposure have they had to computers?

  - What skills do they believe they need?

- During this phase of analysis, the potential audience can also be introduced to the possible skills they could acquire with computer usage. Assessing attitudes is also an important part of a needs assessment, particularly if there is fear of computers and fear of job loss. If either are present, training will need to address these problems.

- A variety of approaches can be taken to determine audience and need:

  - A structured, one-on-one interview can be used with a sample of employees to determine what they know and how they feel about computers. The one-on-one interview is most appropriate at the senior management level and also with high performers.

  - Small group discussions are useful for assessing needs at lower levels. These can also become "brainstorming sessions" where the individuals build on each others' contributions.

- Surveying or testing can also be used, although a greater effort is required to manage the survey process.

  . One of the INPUT survey respondents uses SKILLS INVENTORY shown in Exhibit V-2. Small groups of clerical and professional staff are brought together to discuss their needs for training--both for computer and job skills. They fill out the inventory, and the training staff is then able to determine the areas of greatest need.

V-2 ✓

o The findings of these steps are then analyzed to determine:

  - What needs do groups of users have in common?

  - What levels of skill and knowledge are present (novice, trained or adaptor)?

  - Who would ~~be~~ MAKE good test cases for initial training?

  - What will be the measures of successful training? Is there a desirable skill level, a certain attitude, or performance level desired?

  - Who needs computer literacy training in addition to skill and application training?

  - Who should not be approached because they could inhibit the success of a training program?

o Next the implementation method should be determined. Both the source and the techniques of training must be assessed. Chapters VI and VII will provide useful insights on training sources (manufacturers, training services, or in-house resources) and techniques (traditional, technological, and innovative). A cost/benefit analysis can be done for the various sources and techniques. (See Section B and C which follows.)

- o Education analysis is the next step. The course materials ~~ideally~~ should be validated with a representative from the target audience. The validation will include an assessment of the training package and measure of success of meeting the job task requirements. Discrepancies should be corrected prior to offering the training on a wide-scale basis.

- o Follow-up or on-going assessment of whether the success measures are being met should also be performed after wide-scale training has been implemented. Corrective actions, course deletions and additions will be necessary based on changing user needs and skills as well as based on introduction of new technology.

B. COSTS OF TRAINING

- o The costs of training will vary based on the source and the technique. In general, the shorter the time to proficiency, the more cost-effective is the source and technique. Time to proficiency will vary by employee, but with experience, averages can be determined.

- o When comparing costs of one training source or technique, the following should be considered:

  - Off-site training requires travel and subsistence and usually longer periods of time away from the job than on-site.

  - Waiting until the next available course means that the employee is operating at less than optimum efficiency, so self-administered instruction may be more cost-effective.

  - Any training (unless done on employee's own time) means that the employee is not available to do their regular job, so the relative length of training becomes critical.

- The costs for computer-based training include hardware, software, and possibly communications.

- Other media-based training requires special equipment and facilities.

- Multiple copies of computer-based or other media-based training may be necessary so that employees do not have to wait for a copy to become available.

o One of the respondents had calculated end-user training costs as follows:

- Figuring that the average accountant earns $41,150 in a year (including benefits), and that there are 261 working days in a year, then the accountant costs the company $150 per day.

- For 10 accountants to be in training for five days, the cost will be $7,500.

- The training itself, which can vary between $500 and $1,000 a day plus travel expenses if the training is not local.

- For five days, that amount could be between $3,000 and $6,000.

- The grand total of the training is then between $10,500 and $13,500 for one course.

o Another company used the worksheet in Exhibit V-3 to compare training costs for various alternatives. Notes for using the worksheet follow:

- Estimated time to proficiency came from in-house experience or from manufacturer and training vendor promotional literature.

- Employee time cost was calculated as:

$$\frac{\text{Training period}}{\text{Total days worked in a year}} \times \text{Annual salary and benefits}$$

- This was multiplied times all the employees to be trained in a year or for a particular course.

  - Travel costs were likewise calculated per all employees to be trained in a year or for a particular course.

  - For in-house training, ~~space and other facilities, instruction and on-going support personnel. Salaries and benefits, and equipment (hardware, software, communications, manuals, etc.) were~~ costs were either calculated per course or amortized for a year. These costs include: • facilities • Equipment (hardware, software, communications, manuals, etc. • Training and support personnel (salary and benefit expenses).

  - Training package costs were calculated for each training source--manufacturer, training service or for use in-house.

C. COST/BENEFIT ANALYSIS DISCUSSION

- The shorter, more precise the training period is, the shorter will be the payback TIME in terms of increased productivity, but the costs to provide the shortest training period may be prohibitive. Sending everyone in the company to a 5-day course, for example, is probably ~~to~~ Too expensive. Also there must be a tangible productivity measure, such as once proficiency is achieved, budgets will be prepared in 2-days rather than 5-days. Again, see Chapter III-C-B Benefits for other measures.

- In the INPUT survey, not one company performed a cost/benefit analysis. All of them had determined that training was mandatory to take advantage of new technology. All of them lumped training cost into the cost of the equipment. Cost/benefit analysis was done to some extent for the equipment and some of the costs for training were included, but the respondents felt they did not know all the costs of providing for end-user training. Some of them evaluated various sources and techniques, but the choice of one over another was NOT based on cost. INSTEAD The source ~~or~~ AND technique were chosen ~~rather~~ BY based on the "company's way of doing business." For example, this meant that the

source of training was to be in-house, because only in-house trainers would know the company's way of doing business.

- This is not to say that a cost/benefit analysis should not be performed. At the very least, the relative costs of the various sources and techniques should be determined for each company. The worksheet in Exhibit V-3 can be used. Leveraging capital and labor costs is key. See Exhibit V-4. ~~Capital/Labor Costs by Type of Training.~~

VI SUPPLIERS

- The sources of end-user training are the hardware and software manufacturers, training services and training package vendors, and in-house resources such as IS staff or the Information Center and Human Resources training personnel. A summary of the major pros and cons of each is presented in Exhibit VI-1.

VI-1

A. MANUFACTURERS

1. HARDWARE MANUFACTURERS

- Nearly all of the end-user product manufacturers offer some training for purchasers of their products. This is particularly true of the word processing or integrated office system products (DEC All-in-One or Data General's CEO). Vendor support for these products includes documentation, manuals, and actual training sessions. The training sessions are usually available for only a limited number of employees as a part of the system purchase price. The vendor suggests that they train one employee per system who can then train other customer employees. The one person is normally the person who will be the System Supervisor, System Administrator or Lead Operator. This is a "train the trainer" approach. Other employees can be trained by the vendor, but at additional cost averaging around $300 and up per day per employee. This type of training is only good for those who will actually operate the system or who will supervise operations.

- Because the hardware manufacturers have been under intense competitive pressure, most have unbundled the majority of customer support. Also, they have increasingly offered self-paced training aids.

  - Wang, for example, offers WILS (Wang Interactive Learning System) which uses optical laser videodisc computer-assisted instruction. The system is to provide user-controlled training from screen and keyboard introduction through advanced features. Users can view a demonstration from an instructor on a TV screen and can practice actual word processing operation directly at the workstation. The user can control the pace and sequence of training so that they can pause and review course material or skip ahead to other functions.

- Many of the manufacturers provide educational consulting services to large purchasers. They will spend time with customer representatives analyzing current skills and identifying the new skills that are required.

  - Honeywell, for example, has education specialists who will work with their customers to identify and list specific performance related objectives that training should achieve, and build tests to measure the effectiveness of the training tools selected. They will help their customers choose the right media. They will provide follow-up as job requirements change as a result of using their products. They, like other vendors, can provide off-the-shelf computer-aided self-paced instruction or, for a price, can customize the training.

- The manufacturers with multiple product lines provide computer literacy courses which are free to large customers or potential large customers. And they also have courses designed for end users as well as IS professional for a fee.

- IBM Information Systems Management Institute offers a variety of end-user computing and productivity courses such as:

. Managing Personal Computing	2 1/2 days	$620
. User Computing: Planning for Productivity	2 1/2 days	$640
. Project Planning and Control for Users	3 days	$953

o Personal computer manufacturers primarily offer only documentation, manuals, and computer-based training aids.

2. SOFTWARE MANUFACTURERS AND SYSTEM INTEGRATORS

o These vendors offer training solutions of various techniques depending on the cost of the product--the larger, the more comprehensive the training solution and the smaller, the more likely the solutions will be computer-based.

- Visicorp through its book publishing division, Visipress, is introducing disk-based tutorials on its products, called Visitutors. They are also developing a series of training seminars call Visitraining.

- Comprehensive training is provided by Aetna Agency Computer, a division of Aetna Insurance which sells IBM Series I computer systems and IBM PCs to independent insurance agencies. The employees of these agencies have normally had no introduction to computing. The vendor-supplied training is tailored to each client. It begins with some pre-training to insure that the employees know their business. So it may begin with some accounting fundamentals. System training includes how to use the system on a daily basis, and then how to do one time or infrequent activities such as the end-of-the-month close. It also includes more technical training like how to communicate between their system and the Aetna headquarters computer systems. After initial training and after the system is implemented, there is some one-

on-one training or refresher training provided. They, like other vendors, sponsor a user group to determine needed system enhancements (including training enhancements), a hot line, and a newsletter.

- The system integrators, such as Aetna Agency Computer, currently offer some of the best customized training which combines one-on-one, workshops, and on-going support based on in-depth knowledge of system application to a specific end-user market niche.

B. TRAINING SERVICES AND TRAINING PACKAGE VENDORS

o The explosive growth of the end-user computing industry has led to a growth in training service and training package vendors. Both have been established to meet deficiencies resulting from inadequate or insufficient manufacturer training and serve as an alternative to developing training resources in-house.

1. TRAINING SERVICE ORGANIZATIONS

o Training services are offered by individual consultants, small local consulting firms, and larger national organizations such as Deltak or National Training Services, Inc. and through computer stores such as Computerland and Businessland. These firms offer a variety of training techniques including one-on-one training, lectures and seminars, workshops where students hear lectures and have hands-on experience with equipment, and computer-based instruction.

- National Training Systems, Inc. (NTS) of Santa Monica, California specializes in developing customized training, but is better known for their off-the-shelf training programs which are based on instructional technology. This is a discipline that mixes educational theory with psychology and "hard-nosed pragmatism."

- An example of it is the Executive Computing Workshop which has been used to train over 900 executives at United Technologies Corporation

(UTC) in Hartford, Connecticut. The goals of the workshop were to increase personal productivity of the executives, to help them become proficient enough to manage others who use personal computers, and to make them aware of technological resources to help keep their company on the leading edge of innovation.

- The costs of this training have been over $5 million. They include approximately $300,000 to develop course materials plus $500 per person, plus a fully equipped IBM PC for each user.

- The workshop accommodates 12 to 16 participants who have access to an IBM PC, running Context Management Systems MBA (spreadsheet, word processing, graphics, communications and storage and retrieval).

  . There is a precourse handbook, EXECUTIVE BRIEFING BOOKLET, which describes the workshop agenda, a Personal Computer Plan Checklist, and articles on personal computers.

  . The workshop is led by two instructors--one a technical expert and the other an executive with extensive personal computing experience who appeals to participants on a peer level. With two instructors, each can serve as a coach as they rove through the room, offering assistance to individuals.

  . Participants receive a general introduction to microcomputing, but primarily, they get hands-on training on the PC.

  . During the course, there is a management simulation exercise where participants are divided into teams and using a PC are to propose, produce, and distribute a movie.

  . There is also a whole day devoted to advanced individual practice where coaches answer questions and give advice. Executives are encouraged to learn how to anticipate changes which will keep their company on the leading edge.

. NTS also offers a one-day computer workshop which is more of a personal computer awareness seminar, called Micro Ease.

- NTS and other firms offer training as a part of more comprehensive services.

- A San Francisco Bay Area firm gaining international attention, is Ferrin. Ferrin provides total personal computing support for businesses and business professionals. Their four services are:

  . Planning--advising companies on how to use personal computers over the next five years, how they will ~~impact~~ AFFECT the organization, how they must be managed, and which hardware and software vendors to use.

  . Installation--support to actually install the selected personal computers.

  . Training--both customized or off-the shelf classes in the use of personal computers. Management sessions are designed to equip top executives and managers with the knowledge necessary to maximize the benefits of computers within their organizations. Topics include: planning, control, personnel issues, security, standards, and support. Ferrin also offers courses on developing skills and applying various software packages such as Lotus ~~1-2-~~ 3, MutltiMate and dBase II at a cost of approximately $100 per half-day class.

  . Post-installation support--troubleshooting (telephone or on-site) and on-going systems enhancements.

- One firm stands out for their courses for the end users of the Information Center. This is CRWTH COMPUTER COURSEWARES of Santa Monica. They have a full curriculum of courses with a recommended sequence for end users to develop computer literacy, skill and adaptation ability. See Appendix ~~B~~ A for several examples of their courses. ✓ AP.A

2. TRAINING PACKAGE VENDORS

o A growing number of companies offer independent study training material only. The most typical independent study training package is computer-based training, although other media such as video is also used. These training techniques will be discussed more fully in Chapter VII-B, Technology-Based Techniques.

- American Training International, Inc. (ATI) of Manhattan Beach sells their products via mail as well as in bookstores and record stores. Their products include computer-based training for virtually every best-selling micro software package, operating on almost every microcomputer.

- Their approach is based on the belief that professionals care very little about concepts of computing; they just want to develop the skills necessary to use them. The analogy is that people only need to know how to drive a car, not to repair the automobile's engine.

- The ATI computer-based training provides the trainee with a series of simulations on the software. The learner enters typical commands and is able to see what happens on the screen. The ATI software monitors the keyboard to make sure that the learner is striking the correct keys. If not, an error message is displayed and the lesson will not proceed until the learner does it correctly.

- The trainee learns by doing correctly.

o ATI is just one of an increasing number of training package vendors. A comprehensive list of training packages available from ATI and others is published by Dialogue Systems, Inc. (DSI) of New York. A copy of a recent DSI catalog is in Appendix B.

C. IN-HOUSE TRAINING RESOURCES

- Recognizing the deficiencies of manufacturers, the perceived higher expense of training services, and the need to provide on-going, customized training, companies are increasingly developing in-house end-users' training resources. These resources include the IS staff, the Information Center, and the Human Resources staff. In-house resources ostensibly know their employees, their corporate culture, and the applications of end-user computing such that they can provide the most appropriate training.

- Programs developed by in-house staff range from use of manuals and self-paced computer-based training, to large training centers which sponsor continuing programs on computer literacy, skills development, and specific applications.

  - One respondent of the companies talked about their "Saturday sessions" for executives. Because they believe that their senior executives place a different value on their weekend time, they chose Saturday to provide an introductory course in personal computers to not only the executives, but to their children or grandchildren. The course is geared to the kids, such that introductory material can be presented without insulting the executives. The executives are put in the role of assisting their children, so they forget their fears. Sometimes the children even end up teaching their parents.

1. IS STAFF

- The most commonly used in-house resource is the IS staff. Programmers and systems analysts who have been involved in the development of end-user computing applications, or who have assisted in the evaluation of word processing or personal computers have been selected to train new users. Use of timesharing resources are facilitated by one-on-one training from IS staff and by scheduled workshops which include hands-on practice with a variety of end-user tools. IS staff may also offer end users self-teaching aids, workbooks, and manuals.

- One respondent listed the following services provided by ~~their~~ IS staff, selected because of ~~their~~ facilitation skills as well as ~~their~~ technical competency.

  . User counseling on hardware and software selection.

  . Initial one-on-one training.

  . Workshops for timesharing and specific application running on mainframe computing resources.

  . Word processing courses ranging from 3-day introductory courses for new employees to 1-day courses for advanced functions. Both were oriented towards specific use within the company although there ~~was~~ some concepts provided in the introductory course.

  . Courses of 2 to 4 hours duration for various software packages selected for the IBM PC--these were both beginning and advanced training which stressed hands-on operation.

  . On-going troubleshooting.

  . Central help=line manned by someone able to refer an end user to appropriate help=facilities if they were unable to help the end user.

  . Library of self-paced teaching aids.

2. INFORMATION CENTER

o In many companies, the Information Center, a service from IS, initially, created just for allowing end users access to mainframe computing resources, is now the locus of end user introduction to personal computing, and in some companies, also to word processing system use. The list above, might be offered through the Information Center.

- The Information Center is a place that potential end users can come and try personal computers, and in essence, "Kick the tires." They receive either personal assistance or access to a self-paced training package in order to get started.

- The Information Center as a place serves as a specific locus of training and support for end users--it becomes the end-users resource. This is the advantage of the IC over traditional IS support.

- See also INPUT Report "Organizing the Information Center," July, 1983.

3. HUMAN RESOURCES

o Several companies responding to the Input survey had turned end-user training over to the Human Resources training and development staff. The Human Resources department is often best able to institutionalize the training. They already have the mechanism for advertising and promoting training and development, perhaps through a company newsletter. Many respondents felt that the HR trainers were better trainers or training facilitators with better people skills than IS staff. Of course, they had to be trained in end-user computing first either by IS or by outside sources. They need "train the trainer" type training.

o At least one respondent felt that since HR could institutionalize end-user training, ~~that~~ they had an advantage over other in-house resources.

D. EVALUATION OF TRAINING SOURCES

o The quality of training from any source varies. But each has its place in providing end-user training. Exhibit VI-2 is an overall evaluation of the effectiveness of training sources for each organizational level.

VI-2

1. MANUFACTURER-SUPPLIED TRAINING

- Manufacturer training is appropriate for initial training, for training in-house trainers and for executive/manager computer literacy. Vendors such as CPT, NBI, Wang and Xerox provide adequate initial training assistance, but it only starts the users on the way to achieving skill and rarely assists an end user to be able to apply their knowledge adaptively on an on-going basis.

- Companies who train 20 or more word processing or integrated office system operators per year will benefit from such aids as the Wang Interactive Learning System. An in-house clerical or professional level employee can administer the program. All organizational levels may also use segments of the course to develop skills in word processing and system operation.

- Companies who use manufacturer-supplied training should ask for a customer service representative who can be on-call to answer follow-up questions and solve problems after initial training sessions.

2. TRAINING VENDORS AND PACKAGE VENDORS

- Training firms can be very knowledgeable about training techniques and can effectively assist in computer literacy and skill training. They are appropriately used for executive computer literacy and skill development, for training in-house trainers, or in case you do not want to develop an in-house training resource. The advantage to using an outside vendor is that you do not have to dedicate personnel to develop and teach courses on a short-term basis—which may be appropriate until your company selects standard systems and standard end-user software packages. Those firms which provide on-going support will be there when you need them, but otherwise, the firms will not necessarily know your specific needs. Like the manufacturers, they are not as effective ~~at~~ IN training ~~for applying~~ TO APPLY end-user computing tools to your specific company needs on an on-going basis. This will probably change as existing or new vendors develop training for specific applications geared to specific niches.

- The self-paced packages available are improving, and should be made available as an in-house resource. These will be further evaluated in Chapter VII-B, Technology-Based Techniques.

3. IN-HOUSE RESOURCES

- This option is best if you believe that a base of knowledge to provide on-going training is necessary. In-house resources are available to answer questions after the training is completed. They can continuously ~~be refining~~ REFINE training programs to make them more appropriate and applicable to end-user needs. They understand the corporate culture and know the company's ~~both technical and personnel~~ TECHNICAL AND PERSONNEL resources. Consequently, they can assist staff to apply technology to specific requirements.

- Some problems associated with developing in-house training resources are that the investment in developing an in-house resource can be high, although if viewed as a long-term investment, IT will be less expensive than ~~uses of~~ USING other resources. Also, in-house staff are not necessarily good trainers, so they themselves must be trained in training techniques. There are also no career opportunities inherent for trainers, so staff should be rotated into and out of a training position.

VII

VII TECHNIQUES

- Each of the various suppliers can and do offer a variety of training techniques for end users in order to provide computer literacy, skills, and application capabilities. These include:

  - Traditional one-on-one and classroom training.

  - Technology-based techniques using the computer itself and other media.

  - Adaptive techniques which include the use of peer trainers and the learning center approach.

- Each of these will be described briefly in this section, along with their advantages and disadvantages, as summarized in Exhibit VII-1. An evaluation of the effectiveness of each category in meeting training goals will be presented in the conclusion.

- This is not an all-inclusive discussion of training techniques. For further information on training techniques, the reader is referred to a variety of periodicals. These are listed in Appendix C.

A. TRADITIONAL TECHNIQUES

1. ONE-ON-ONE

- Since users have a variety of backgrounds, different needs, and different capabilities to learn, many training experts say that unless instruction is one-

on-one, training falls short of its goal. It would be ideal that each end user have his or her hand held as they are exposed to new technologies. Each individual could have materials tailored to meet his or her specific training needs.

- o This probably is the best way to train executives, if the trainer is not only knowledgeable about the use of computers, but can convey how to develop skills, can assist the executive in applying software to solve specific business problems and can mesh with the executive's personality and style. Unfortunately, one-on-one training can turn into a demonstration only and not provide the trainee with any hands-on experience. ~~And having~~ With such high labor content, this is probably the most expensive type of training.

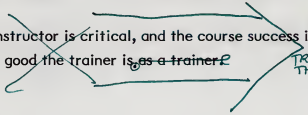
- o One-on-one is particularly effective for follow-up training. Once an end-user has had initial training and has begun to apply the knowledge on the job, then a trainer can in a short time, assess progress and guide the end user to more effective applications.

2. WORKSHOPS

- o For larger numbers of trainees, a structured lecture or seminar, combined with hands-on access to personal computers or word processing systems is effective for the cost. The costs include:

  - Course fees or instructor salaries.
  - Facilities and equipment.
  - User training time.
  - Travel-related expenses if the workshop is held off-site.

- o The quality of the instructor is critical, and the course success is mos dependent upon how good the trainer is ~~as a trainer~~.



THE SUCCESS OF THE COURSE IS MOSTLY DEPENDENT ON THE QUALITY OF THE INSTRUCTOR
OK
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- o There are several advantages:
  - Workshops can be developed in-house and customized to specific applications.
  - Since it ~~need~~ involves little media preparation, the production phase is kept to a minimum.
  - Trainees can interact with the instructor to get answers and feedback.
- o The disadvantages are that:
  - Scheduling of instructor, students, and facilities must all be coordinated.
  - ~~Procedures for course development in-house must already be in place, so smaller companies can not take advantage of in-house training development and implementation.~~
  - Workshops require attendance, so work schedules can be disrupted, and there will be associated travel expenses.
  - While workshops can be customized to an organization, it is unrealistic to tailor them to each individual's specific needs. Slow learners can be left behind so the training of them will be ineffective.
- o The best workshops provide minimal concept, maximum hands-on experience, and an opportunity for the trainee to engage in question and answer time with the trainer. The hands-on portion should be performed using material or a problem which the trainee needs to perform or solve. A useful instrument which trainees can take away with them is a "cheat sheet" - a single sheet, the smaller the better, which contains the most used commands or instructions, along with space for the user's notes.

B. TECHNOLOGY-BASED TECHNIQUES

1. COMPUTER-BASED TRAINING

- This technique uses interaction with the computer for the training.

- With CBT, information and instructional material is presented in a series of screens, sometimes using text and sometimes graphics. The user interacts by responding to the instructions, and the system provides feedback on his responses. The material presented can be designed to let a user select only those topics he needs or wants. The system will wait for the trainee's responses, so the student can progress at his own pace. The system can ask the student or test the student on whether they have grasped the concepts or feel they have learned the skill, and if not, the system can repeat the instruction set.

- It has a number of advantages:

  - CBT provides hands-on experience and builds confidence and skill in using the equipment.

  - Since it is self-paced it is particularly adaptive to each individual's learning pace and needs.

  - It is cost effective in that it is reusable by multiple students, requires only the equipment that the trainee will need to do his or her work anyway, and requires no instructor time or user travel.

  - Users can arrange the time most convenient for them, thereby obviating scheduling problems.

  - If the student is interrupted when taking the course, it can be restarted.

- o But, it has several disadvantages:
  - The student must already have some familiarity with computer operations.
  - Each CBT is generic for the tool. For example, Visicalc training is on a how to develop a spreadsheet, not for how to solve a specific business problem.
  - Self-paced material can be boring.
  - Students can learn how to move through the course with proper responses, but not really learn the contents.
  - Computer responses can be discouraging or condescending.
  - Students cannot ask questions.
  - When operating the CBT, normally you cannot save your input.
- o CBT can be expensive to develop in-house. But there are a number of tools for developing them, primarly authoring systems. A few personal computer-based authoring systems are:

Authoring System	Vendor
Authority	Interactive Training Systems Cambridge, MA
Ghostwriter	Cavri Systems New Haven, CT
Interact	Ashton, Inc. Vestal, NY
Professional Authoring Software System	Bell & Howell Company Chicago, IL
Video Courseware Development System	Bell & Howell Company Chicago, IL

o Mainframe-based authoring systems include:

Authoring System	Vendor
Phoenix System	Goal Systems International Columbus, OH
Plato	Control Data Corporation Minneapolis, MN
Scholar/Teach 3 (also for the PC)	Boeing Computer Service Company Seattle, WA

2. OTHER MEDIA-BASED TRAINING

o Video tape, videodisc, and audio-based training products are also available which are alternatives to lecture training.

o The advantage of these training packages are that:

- If these are developed in-house, they can be tailored to address specific needs and applications.

- They provide a high degree of student choice if they are self-paced.

- They are an excellent way to provide an introduction to a system such as a personal computer or a word processing system.

- Seeing the real system and seeing how something is done is better than reading about it.

o The disadvantages are:

- Like with lecture-type training there is a one-time cost to develop these training packages, and unless production facilities are already available, the production costs can be prohibitive.

- Additional audio and video equipment is needed which can sometimes be expensive, and their operation must also be learned.

- Video-based training requires rewinding the tape for reviews and does not allow skipping around within the instructions. Unless it is coupled with computer-based instructions, it does not provide the student with hands-on experience.

C. ADAPTIVE TECHNIQUES

o Training experts advocate techniques which assist trainees in achieving an ability to adapt or apply new technology on an on-going basis.

1. PEER TRAINERS

o Within each group of trainees, one or more students emerge as a natural leader and teacher. They have an aptitude for what they have learned and an ability to pass on their understanding and their enthusiasm. These people should be nurtured because they are invaluable to their peers. Their peers seek them out since they are so accessible and understand their needs and have the same problems to solve.

o They can be given extra attention and training, and kept up-to-date on new training and new applications. And their use of the new technology will often be the most adaptive and should be shared with others within the organization.

2. LEARNING CENTER

o One company respondent discussed how ~~their~~ Information Center had evolved into a "Learning Center" where trainees learn how to adapt technology after they have become skilled.

o Word processing operators and personal computer users were encouraged to come to the center on a regular basis (once a month approximately), bringing whatever work they were currently doing with them. At these sessions, 6 to 8 employees guided by a Center trainer would discuss how they had applied

technology to solve their problems. The group problem solving approach carried over when they returned to their jobs in that each person could contact others they had met in the workshop whenever they had new problems to solve or had developed solutions which they wanted to share. The Learning Center also published a newsletter of solutions.

D. EVALUATION OF TECHNIQUES

- As stated in Chapter III, the goals of training are:
  - To achieve computer literacy.
  - To develop skills in operating technology.
  - To promote adaptation or application.
- Exhibit VII-2, ~~EFFECTIVENESS OF TRAINING TECHNIQUES IN MEETING GOALS~~, summarizes for each of the training techniques, which goals they achieve most and least effectively given their costs, advantages and disadvantages. Exhibit VII-3, ~~EFFECTIVENESS OF TRAINING TECHNIQUES FOR ORGANIZATIONAL LEVEL~~, summarizes for each of the training techniques the user category for which it is most effective.

VII-2

VII-3

VIII

VIII CONCLUSIONS AND RECOMMENDATIONS

A. CONCLUSIONS

- The goals of end-user training are to develop computer literacy--an awareness of the basic about computers, skill in operation of hardware and software, and an ability to adapt new technology to business needs on an on-going basis.

- The primary benefits of end-user training are to reduce the learning curve of new users and achieve the benefits of the technology so as to achieve a faster return on investment.

- End users can be categorized by their job level, their functional responsibilities, their information handling requirements, the specific tools they need for information handling, or their skill level.

- The costs of training should be included in the overall cost of the system being acquired. A cost/benefit analysis is appropriate in comparing the cost-effectiveness of one training over another.

- The suppliers of end-user training are varied in quality and the training techniques they use. The sources of training are the hardware and software manufacturers, training services and training package vendors, and in-house resources. Each of the sources has value:

  - The manufacturer knows the product.

  - The training vendor knows how to train.

- The in-house resources know the company and end-user needs and applications.

o Training techniques, likewise are varied, but all are appropriate to greater or lesser degrees in achieving the goals of training:

- One-on-one training is most adaptive to individual needs.

o Workshops are cost-effective for training larger numbers of end-users, particularly if they can be tailored to the end users.

- Computer-based training is cost effective, adaptive to individual needs, and builds hands-on experience with the computer system.

- Other media is also effective if it is tailored to the end-user's needs.

- Peer training and the learning center build adaptation abilities.

o The most effective training will have the following characteristics:

- Is targeted to meet specific business and end-user needs.

- Is tied to the company's way of doing business.

- Uses actual cases or addresses actual problems familiar to the end-users.

- Consists of ongoing training with frequent fine-tuning to insure that training continues to meet end-user needs.

- Uses managers and peers as trainers to promote ongoing adaptation of new technology.

B. RECOMMENDATIONS - DEVELOPING A TRAINING STRATEGY

- Complete a needs assessment as outlined in this report. See Exhibit VIII-1 for a needs assessment checklist. Have the end users define their own needs and measures of training success. ~~Make sure that they define their own needs and be prepared to provide training.~~ Don't provide training for people who just want to "play with a computer" or who do not know their needs and how computers can assist them.

- Define your end-users both by their functional (departmental) responsibilities and by the specific tools which they need to fulfill their responsibilities.

- Use as much manufacturer-supplied training as is available with the cost of the system. At the very minimum, have one person trained on the new system who can then provide training in-house. Also, take advantage of any computer literacy courses offered to your company executives. (This service, while free, will also be a promotional effort.) Ask for a customer service representative to be on-call for 3 to 6 months, to answer follow-up questions and solve problems after initial training sessions.

- Be prepared to bring end-user training in-house. Training is an ongoing commitment, and in-house resources know the company culture, departmental and individual needs for computer systems.

- Assign someone the responsibility for end-user training. Candidates are the IS training manager, the Information Center manager, or a Human Resource development manager. The end-user training manager will have responsibility for computer literacy and personal computer, word processing, integrated office system, and timesharing system skill development and adaptation for end users. This person should report as high as possible, ~~not to the systems manager or the application development manager~~, and ~~give them~~ planning and budgeting responsibility. ~~Reporting high~~ demonstrates management's commitment to training.

- In-house end-user training resources can be provided through the Information Center or IS. As soon as courses are well defined, they can be turned over to the Human Resources Training and Development if they already have institutionalized training.

- If there is not already an Information Center, establish one. (See INPUT report on the Information Center.) Allow it to serve as a learning center where staff can come with problems to solve and meet with their peers and a training consultant.

- Instill in managers the need to be involved in training. They are the best role model. The best argument to convince them is that training is one of the highest-leverage activities a manager can perform. By increasing individual capability, a manager can raise the level of individual performance of his or her subordinates and thereby increase the overall performance of his department or division.

App. A:

Sample End-User Training Curriculum

INTRODUCTION TO THE INFORMATION CENTER

(ICUSER)

AUDIENCE:

First time users of the Information Center or potential users.

TIME:

Approximately 1 to 2 hours.

PREREQUISITES:

None.

OBJECTIVES:

Upon completion of this survey course, the user should be able to:

- Understand the advantages and use of an Information Center.
- Use a display terminal.
- Know the types of tools available.
- Know what functions can be performed using the Information Center tools.
- Understand how you get the work done.
- Understand how you instruct the computer.
- Understand how to compute with data.
- Understand reporting concepts.

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INTRODUCTION TO THE INFORMATION CENTER

COURSE CONTENT

SESSION 1: OVERVIEW OF THE INFORMATION CENTER

What is the Information Center; why use it.

SESSION 2: INFORMATION CENTER EQUIPMENT

Description and use of the display terminal.

SESSION 3: INFORMATION CENTER FUNCTIONS

Overview of typical applications used in an Information Center; tools of the Information Center.

SESSION 4: INFORMATION CONCEPTS

Information and data; input, processing, and output of data; public vs. private data.

SESSION 5: GETTING THE WORK DONE

Entry of data and text; the need for it; saving it.

SESSION 6: INSTRUCTING THE COMPUTER

What are commands and statements; why they are used.

SESSION 7: REPORTS AND QUERIES

What is a report; why reports are generated; illustrations of reports and queries.

SESSION 8: REPORT PREPARATION

Selecting, Sorting, and Grouping. Why select; why sort; why group.

SESSION 9: USING THE INFORMATION CENTER

People associated with the Information Center; getting equipped to use the Information Center; who to call when things go wrong; costs.

DEVELOPING DATA PROCESSING SKILLS FOR END USERS

(DPSKIL)

AUDIENCE:

End users who will be doing their own computing.

TIME:

Approximately 5 to 6 hours.

PREREQUISITES:

None.

OBJECTIVES:

Upon completion of this course, the user should be able to:

- Know what the prerequisites for a computer application are.
- Know the types of data processing tools available.
- Understand data concepts.
- Understand text editors and their uses.
- Understand how to compute with data.
- Understand how to select data.
- Understand sorting concepts and how to sort.
- Understand control break concepts.
- Understand how to generate computer reports.
- Understand the use of libraries, naming elements in libraries, backup and recovery.
- Understand the components of cost.

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DEVELOPING DATA PROCESSING SKILLS FOR END USERS

COURSE CONTENT

SESSION 1: THE ENVIRONMENT

Description and use of the display terminal. Differences in using large computers and personal computers.

SESSION 2: HOW YOU USE THE COMPUTER

Overview of typical applications; data processing tools; how you use the data processing tools; case study used in this course.

SESSION 3: DATA CONCEPTS

Data formats; fields of data; records of data; files of data; ownership of data.

SESSION 4: TEXT EDITORS

What a text editor is; the need for it; text editor modes of operation; how to use a text editor.

SESSION 5: CALCULATIONS

Calculation notation; arithmetic expressions; assignment statement; working storage items.

SESSION 6: LANGUAGE COMMANDS OR STATEMENTS

Format of commands/statements; how to use them; the stored program concept.

SESSION 7: REPORTS

What is a report; why you report; creating a report.

SESSION 8: SELECTION CAPABILITY

Why select; logic used to perform record selection; example of selecting.

SESSION 9: SORTING

Why sort; sorting concepts; sort order of individual fields; sort keys; a sorting example.

SESSION 10: GROUPING

The need to group; grouping and control breaks; totals on groups.

SESSION 11: DEBUGGING — WHAT CAN GO WRONG

Why things go wrong; recognizing errors; correcting errors; debugging example.

SESSION 12: LIBRARY FUNCTIONS

Why store programs; data storage; add; replace; delete; backup; recovery.

SESSION 13: COST

Factors in cost; differences between charges for large and personal computers; final summary.

INTRODUCTION TO DATA PROCESSING FOR END USERS©

(DPUSER)

AUDIENCE:

- End users of computer systems.
- Individuals who come in contact with data processing: secretaries; control clerks; data entry clerks; etc.

TIME:

Approximately 3 hours.

PREREQUISITES:

Familiarity with:

- Use of the display terminal (the 3270 IBM course or a ten minute tutorial will fulfill this need).
- Use of IIS (the IBM INTROF course will fulfill this need).

OBJECTIVES:

Upon completion of this course, a student should be able to:

- Define the term computer.
- Define the term data processing.
- Describe the major functions of a computer.
- Understand the processing flow of a computer.
- Describe the hardware components of computer systems.
- Describe the input/output devices of computer systems.
- Understand software functions.
- Be familiar with the functional positions of people who are associated with computer systems.
- Follow the developmental process of a computer system from its beginning to its end.

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INTRODUCTION TO DATA PROCESSING FOR END USERS

COURSE CONTENT

SESSION 1: OVERVIEW OF COMPUTER SYSTEMS

What is a computer; its relation to data processing; the use of computers; how computers function; the major components of a computer system.

SESSION 2: FUNCTIONAL STEPS OF A COMPUTER SYSTEM

Input processing, source data and examples of their uses; processing data using arithmetic operations, logic processing and moving of data; output processing, examples of output media.

SESSION 3: COMPONENTS OF COMPUTER SYSTEMS — HARDWARE

Hardware components: Central Processing Unit (CPU); storage units; channels; control units; Input/Output devices such as: card/read/punch; magnetic tape; disk, display device; printer.

SESSION 4: COMPONENTS OF COMPUTER SYSTEMS — SOFTWARE

Types of software: operating system software, including examples of control software, application software, and its relationship to control software; Job Control Language: what it is and why we need it.

SESSION 5: COMPONENTS OF COMPUTER SYSTEMS — PEOPLE

Discussion of the various functions performed in a DP environment: computer operators; system analyst; programmers; data entry operators; end users.

SESSION 6: USING THE COMPUTER TO SOLVE BUSINESS NEEDS

Summary: review of all concepts presented in the course, using examples from business situations and taking student through the developmental cycle of an entire system.

INTRODUCTION TO DATA COMMUNICATIONS©

(DCUSER)

AUDIENCE:

- End users of on-line computer systems.
- Entry-level data processing professionals with no data communications background.

TIME:

Approximately 2 hours.

PREREQUISITES:

Familiarity with:

- Data processing concepts (the CRWTH EU001 course will fulfill this need).
- Use of the display terminal (the 3270 IBM IIS course or a ten minute tutorial will fulfill this need).

OBJECTIVES:

Upon completion of this course, a student should be able to:

- Understand the terms, concepts and use of data communications.
- State the basic components of a data communications network.
- Be aware of the operational features of data communications.
- Outline problem solving techniques in data communications.

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INTRODUCTION TO DATA COMMUNICATIONS

COURSE CONTENT

SESSION 1: WHAT IS DATA COMMUNICATIONS?

Terms discussed are: data communications; data transmission; messages; teleprocessing; networks.

SESSION 2: WHY USE DATA COMMUNICATIONS?

The need for data communications; for data transmission; in spreading the use of the computer resources.

SESSION 3: COMPONENTS OF DATA COMMUNICATION NETWORKS

Topics discussed are: terminals; modems; data communication lines; transmission control units; computer systems.

SESSION 4: REMOTE ACCESS COMPUTING

Types of processing in a data communications environment; operational procedures; problem solving.

SESSION 5: DISTRIBUTED SYSTEMS

The emergence of distributed systems; host/satellite concept; data communications in a distributed environment.

USING SAS®

(STUSER)

AUDIENCE:

- Users of the SAS* package
- End users who will be doing their own statistical analysis
- Researchers and college-level students

TIME:

Approximately 12-25 hours.

PREREQUISITES:

None, although a course such as Crwth's Developing Data Processing Skills for End Users would be helpful. Those taking the course do not need to know JCL, TSO or CMS, but these are necessary to actually run SAS programs.

OBJECTIVES:

For all SAS users:

- Understand the concepts of using SAS.
- Know what applications SAS can be used for.
- Be fluent in the SAS language.
- Be able to generate simple reports.
- Be able to perform simple statistical analysis.
- Be able to reshape SAS data sets.

For those wishing to know the more advanced SAS features:

- Be able to generate formatted reports.
- Be able to perform general statistical analysis.
- Be able to manipulate arrays.
- Be able to use SAS as a utility.

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USING SAS

COURSE CONTENT

PART I: BASIC SAS

SESSION 1: INTRODUCING SAS: WHY USE SAS
Preview of SAS; Overview of SAS; SAS applications.

SESSION 2: GETTING READY TO USE SAS
How SAS views data; the SAS language (constants, variables, syntax, DATA and PROC steps); submitting SAS jobs; SAS output; working a SAS problem.

SESSION 3: THE DATA STEP
The DATA & INPUT statements; SAS data formats; the CARDS & INFILE statements; selecting & manipulating data; writing a SAS DATA Step.

SESSION 4: SAS PROCS
PROC MEANS & PROC SORT; using SAS PROCs.

SESSION 5: SUBMITTING SAS JOBS
JCL for SAS; using SAS with TSO & CMS.

SESSION 6: LISTINGS & REPORTS
LIST & PROC PRINT; generating reports with PROC PRINT; formats; working a report problem.

SESSION 7: SAS LANGUAGE STATEMENTS
Assignment Statement; logical operations; SAS logic statements; DO Loops & Arrays; variable values; RETAIN.

SESSION 8: WHAT CAN GO WRONG
Why things go wrong; case study problem.

PART II: INTERMEDIATE SAS WITH STATISTICS

SESSION 9: PLOTTING & BAR CHARTS
PROC PLOT; PROC CHART.

SESSION 10: SIMPLE STATISTICS
PROC MEANS; PROC FREQ; PROC SUMMARY; PROC TABULATE; working a statistics problem.

SESSION 11: STATISTICAL ANALYSIS
PROC CORR; PROC ANOVA; PROC GLM; PROC REG.

PART III: ADVANCED SAS

SESSION 12: RESHAPING DATA FOR SAS
Reshaping variables (DROP, KEEP); reshaping observations (DELETE/OUTPUT); SAS data sets & OS files; using SAS Data sets (SET); merging data sets (MERGE); UPDATE; advanced data set manipulation.

SESSION 13: OTHER SAS FEATURES
SAS functions; SAS macros.

SESSION 14: ADVANCED LANGUAGE FEATURES
Control statements; more on arrays; PROC MATRIX overview.

SESSION 15: ADVANCED INPUT FEATURES
List input; formatted input; time & date in SAS; pointer input & repeated fields; multiple line observations.

SESSION 16: ADVANCED OUTPUT & CUSTOM REPORTS
PUT & FILE statements; custom reports.

SESSION 17: MORE ON SAS DATA SETS
Copying SAS data sets; PROC EDITOR.

SESSION 18: REMAINING SAS LANGUAGE FEATURES
Other SAS PROCs; SAS/GRAPH™; SAS/FSP, other SAS products.

SESSION 19: FINAL SUMMARY
SAS problem; course problem.

ISPF* (SPF) FOR END USERS

(SPFUSE)

AUDIENCE:

End users who will be creating and maintaining their own files using the IBM Interactive System Productivity Facility (ISPF) as the editor.

TIME:

Approximately 1½ hours.

PREREQUISITES:

None

OBJECTIVES:

Upon completion of this course, the user should be able to:

- Know why you use ISPF.
- Know what end user functions ISPF performs.
- Know what the dialog manager is and how the end user will use it.
- Know the fundamentals of data management.
- Log onto ISPF.
- Know the use of the major program function keys.
- Use the ISPF menus.
- Know how and when to use the ISPF tutorials.
- Know the major ISPF utilities.
- Allocate and delete a data set.
- Use the editing functions for a data set.
- Print a data set using ISPF.

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*ISPF (Interactive System Productivity Facility) is a product of the IBM Corp.

ISPF (SPF) FOR END USERS

COURSE CONTENT

SESSION 1: OVERVIEW OF SPF

Why use SPF; features of SPF; user facilities; case study problem definition.

SESSION 2: OPERATIONAL & PROCEDURAL USE OF SPF

Logon; SPF structure using menus; program function keys; use of the SPF tutorial.

SESSION 3: FUNDAMENTALS OF DATA MANAGEMENT

Data; files; records, fields; sequential and partitioned data sets; naming conventions for data.

SESSION 4: MANAGING DATA WITH SPF

Overview of SPF utilities; allocating a data set; editing a data set; printing a data set; deleting a data set.

SESSION 5: EDITING DATA

Edit data set screen; edit data display/format; edit commands: line commands, primary line commands, edit profile commands; typical errors.

SESSION 6: SUMMARY

Case study: allocating a data set, entering and editing a data set, printing a data set.

USING FOCUS*

(FOCUSE)

AUDIENCE:

- Users of the FOCUS information control system.
- End users who will be generating their own reports, creating their own files, and manipulating data.

PRESENTATION MEDIA:

- CAI using IIS, IIPS, or Phoenix.

TIME:

- Approximately 12 to 20 hours.

PREREQUISITES:

- None, although a course such as Crwth's "Developing DP Skills for End Users" (DPSKIL) would be helpful.
- Those taking the course do not need to know CMS or TSO, but some knowledge of CMS or TSO is helpful in actually running FOCUS programs.

STUDENT MATERIAL:

- Student workbook is distributed with the course. The workbook is a summary of the CAI course and can be used as a User Reference Guide after completing the course.

OBJECTIVES:

Upon completion of the course, the student should be able to:

- Understand the concepts of using FOCUS.
- Know what applications FOCUS can be used for.
- Be fluent in the FOCUS language.
- Be able to generate simple reports.
- Be able to perform simple computations.

For those wishing to know the more advanced FOCUS features:

- Be able to generate formatted reports.
- Be able to create FOCUS files.
- Be able to maintain FOCUS files.
- Be able to use data bases.
- Be able to create extract files.
- Be able to manipulate and maintain data.
- Be able to generate graphs, histograms, and bar charts.
- Be able to interface with the Dialogue Manager.

CONTACT:

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USING FOCUS
COURSE CONTENT

SESSION 1: INTRODUCING FOCUS
FOCUS preview; Overview of FOCUS; FOCUS applications.

SESSION 2: GETTING READY TO USE FOCUS
How FOCUS views data; the FOCUS language; executing FOCUS programs; FOCUS output; interactive FOCUS; what can go wrong.

SESSION 3: BASIC FOCUS REPORTING
Components of a simple report; putting data in sort order; simple queries; simple reports; column totals; multiple-verb requests; a practice problem.

SESSION 4: SCREENING DATA
Computer logic; other FOCUS features; masked fields.

SESSION 5: COMPUTATIONS IN FOCUS
Operations on verb objects; row totals; computations in FOCUS; logic with computations-overview; where computations can be done; DEFINE'd fields; the RECAP clause; built-in functions; character manipulation; sample computation problem.

SESSION 6: CONTROL BREAKS
Types of control breaks; subtotals with control breaks; ON TABLE; a practice problem.

SESSION 7: FORMATTING REPORTS
Components of a report; the ON Phrase to format reports; report heading and footing; page heading and footing; column headings; fitting columns on the page; fancy formatting; data formats; letter reports; a practice problem.

SESSION 8: HORIZONTAL SORTING IN REPORTS
Horizontal sorting; computations with horizontal sorting in reports.

SESSION 9: OTHER REPORTING FEATURES
HOLD files; SAVE files; MATCH files.

SESSION 10: FOCUS SESSION MONITOR AND DIALOGUE MANAGER
Using the Session Monitor; Overview of the Dialogue Manager.

ADVANCED PORTION OF THE COURSE:
SESSION 11: SOME ADVANCED FOCUS FEATURES
FOR phrase for collecting data; advanced screening techniques; advanced logic in computations; character functions; DECODE feature.

SESSION 12: DESCRIBING EXTERNAL FILES
Types of files; how FOCUS knows where things are; fixed format files; variable external files; VSAM and ISAM files.

SESSION 13: FOCUS FILES
Describing a FOCUS file; entering data into a FOCUS file; prompt input; a practice problem.

SESSION 14: MAINTAINING FOCUS FILES
Review of updating concepts; MATCH Command; computations in updating; the TYPE Command; validation; CASE logic; fixed format transactions.

SESSION 15: ADVANCED FILE MAINTENANCE
The SCAN feature; FIDEL; Browsing files with MODIFY.

SESSION 16: FILE STRUCTURES
File structure concepts; describing structures; the JOIN Command; REBUILD, REORG, and INDEX.

SESSION 17: DIALOGUE MANAGER
Review of the Dialogue Manager; modifying command files; programming the Command File.

SESSION 18: TERMINAL GRAPHICS SYSTEM
Concepts and overview: Graphs and Scatter Diagrams; Histograms and Bar Charts.

SESSION 19: OTHER FOCUS FEATURES
Host Language Interface; Statistical Analysis; User Structured Language; Financial Modelling Language; Data Base Administrator Package.

USING ADRS II*

(ADRUSE)

AUDIENCE:

- End users who will be using ADRS II. The course addresses the novice, intermediate and advanced facilities of ADRS II to build data bases and produce reports.

TIME:

Approximately 10-12 hours.

PREREQUISITES:

- An overview or familiarity with ADRS II would be helpful.
- "Developing DP Skills for End Users" (DPSKIL).

OBJECTIVES:

Upon completion the users should be able to:

- Design, setup, and print reports.
- Group and summarize data.
- Enter data into data bases.
- Document the data bases.
- Make changes to data base formats and contents.
- Tie data bases together.
- Build tables and extract table data in reports.
- Embed variable data into reports.
- Perform calculations.
- Create graphs and histograms.
- Load data bases from external files.
- Use advanced data base utility commands.

CONTACT:

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USING ADRS II

COURSE CONTENT

SESSION 1: OVERVIEW OF ADRS II
)LOAD command;)WSID;)SAVE;)DROP; SETUP; INPUT; LIST; SORT; SELECT; CALCULATE; PROGRAM; using a program; SETREPORTS; REPORTS.

SESSION 2: DOCUMENTING YOUR DATA BASE
Displaying data base information with QUERY; printing QUERY information with PRINTER command.

SESSION 3: ENTERING DATA QUICKLY
FASTCOL; FASTROW; JOBNAME; SETSPECIAL; EXPRESS; EXP.

SESSION 4: DISPLAY TERMINAL DATA ENTRY TECHNIQUES
Data command and data mode; subcommands; use of PF keys.

SESSION 5: ADVANCED PROGRAMMING TECHNIQUES
BUSFACTS; variables in headers and in calculations; conditional calculations; commenting for documentation; calculations using minimum, maximum and exponentiation; monadic (absolute value, signum, negation, and reciprocal); selection (exclude, include, if, andif, orif, otherwise); Control-Break Programs; compiling your programs.

SESSION 6: REGULAR REPORTS WITH CONTROL BREAKS
Titles and Headers; Group Indication; Footnotes; Print options for Control Breaks.

SESSION 7: PATTERN REPORTS
Pattern report codes; split text; mailing labels and other Folded Patterns; using data from related data bases in patterned report headers; creating and using tables in patterned report headers using EDIT command.

SESSION 8: JOB-FLOW COMMANDS FOR TERMINAL PRINTING
SETPAGE; SETSPACE; adjusting cut-forms.

SESSION 9: HIGH-SPEED PRINTER COMMANDS
PRINTER commands; using EDIT command to change COPIES system variable.

SESSION 10: GRAPHS AND HISTOGRAMS
Use of the PLOT command.

SESSION 11: TAILORING YOUR ADRS SESSION
QUIET; HUSH; TALK; EDIT command for message facility; creating WELCOME messages.

SESSION 12: USING AND SHARING RELATED DATA BASES
STORE command for related data base creation; ACTIVATE command; PURGEFILE command; ANALYZE command; TO/FROM commands; SHIP, READER, and CONSOL commands; SETCON variable; KEEP command; FIX and FREE commands.

SESSION 13: LOADING EXTERNAL FILES
LOADFILE command (file identification, record layout definitions, type of operation, record selection statement).

USING ANSWER™/DB®

(ANSDB)

AUDIENCE:

End users who will be generating computer reports by using ANSWER/DB.

TIME:

Approximately 12 hours

PREREQUISITES:

Familiarity with:

- Use of the display terminal (the 3270 IBM course or a ten minute tutorial will fulfill this need).
- Use of IIS (the IBM INTROF course will fulfill this need).

OBJECTIVES:

Upon completion of this course, a student should be able to:

- Understand the types of problems that can be solved by ANSWER/DB.
- Write fluently in ANSWER/DB.
- Understand the computer concepts underlying ANSWER/DB in non-computer terms.
- Know the full ANSWER/DB language and text editor.
- Be able to operate in an ANSWER/DB environment.
- Be aware of the types of problems that are likely to be encountered, including how to interpret a report request, how to analyze the selection logic, how to write boolean logic, and what to do when things go wrong.

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USING ANSWER/DB

COURSE CONTENT

SESSION 1: ANSWER/DB OVERVIEW

Explanation of what Answer/DB is; why use Answer/DB.

SESSION 2: ANSWER/DB TEXT EDITOR

Understanding the text editor; the three Answer/DB modes of operation; getting from one mode to another.

SESSION 3: USING ANSWER/DB COMMANDS

The query mode; the edit mode; the execution mode; working a problem using Answer/DB.

SESSION 4: ANSWER/DB FILES

The file glossary; non-standard names; reading a file.

SESSION 5: ANSWER/DB STATEMENTS

The REPORT statement; record selection; the TITLE statement; sort order; the ORDER statement; the GROUP statement; the summary statements.

SESSION 6: DEBUGGING

Debugging and what to do when things go wrong.

SESSION 7: ADVANCED ANSWER/DB FACILITIES

The LET statement; the IF/ELSE statements; the ANY/ALL requests; special functions; table lookup; the ITEM statement; the FORMAT statement; FILE structures; the SELECT statement.

USING RAMIS II*

(RAUSER)

AUDIENCE:

- Users of the Ramis II* data base management system.
- End users who will be generating their own reports, creating their own files, and manipulating data.

TIME:

Approximately 12 to 20 hours.

PREREQUISITES:

None, although a course such as Crwth's Developing Data Processing Skills for End Users would be helpful. Those taking the course do not need to know CMS or TSO, but some knowledge of CMS or TSO is necessary in actually running RAMIS programs.

OBJECTIVES:

For all RAMIS users:

- Understand the concepts of using RAMIS.
- Know what applications RAMIS can be used for.
- Be fluent in the RAMIS language.
- Be able to generate simple reports.
- Be able to select data for reporting.
- Be able to perform simple calculations.

For those wishing to know the more advanced RAMIS features:

- Be able to generate formatted reports.
- Be able to create RAMIS files.
- Be able to input, update, and delete data in RAMIS files.
- Be able to use data bases.
- Be able to create extract files.
- Be able to manipulate and maintain data.
- Be able to generate graphs, histograms, and bar charts.

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USING RAMIS
COURSE CONTENT

PART I: BASIC RAMIS—REPORT GENERATION

SESSION 1: INTRODUCING RAMIS: WHY USE RAMIS AND WHAT RAMIS DOES

RAMIS preview; Overview of RAMIS; RAMIS applications.

SESSION 2: GETTING READY TO USE RAMIS

How RAMIS views data; The RAMIS language; Executing RAMIS programs; RAMIS output; Interactive RAMIS; What can go wrong.

SESSION 3: BASIC RAMIS REPORTING

Components of a simple report; Putting data in sort order; Simple queries; Simple reports; Column totals; A practice problem.

SESSION 4: SELECTING DATA

Computer logic (EQ, NE, LT, GT, GE, LE, and OR); Other RAMIS features; Other selection logic; Masked fields.

SESSION 5: CALCULATIONS IN RAMIS

Operations on verb objects (MAX, MIN, AVE, PCT, etc.); Row totals; Calculated report columns; Where calculations can be done (DEFINE and column calculations); DEFINE'd fields; Logic with computations—overview (IF/THEN/ELSE); Built-in functions; Character manipulation (Concatenation operators); Sample calculation problem.

SESSION 6: CONTROL BREAKS

Types of control breaks; Subtotals with control breaks; A practice problem.

SESSION 7: FORMATTING REPORTS

Components of a report; Formatting reports; Report heading and footing; Page heading and footnotes; Column headings (AS phrase to title columns); Fitting columns on the page; Fancy formatting; Data formats; Letter reports; A practice problem.

SESSION 8: HORIZONTAL SORTING IN REPORTS

Horizontal sorting; Calculations with horizontal sorting in reports.

SESSION 9: OTHER REPORTING FEATURES

Hold files; Save files; Match files.

SESSION 10: INTERACTIVE REQUEST MODIFICATION AND EXECUTIVE

Interactive request modification; Overview of the Executive.

PART II: INTERMEDIATE RAMIS FILE MANAGEMENT

SESSION 11: SOME ADDITIONAL RAMIS FEATURES

Selecting techniques; Advanced logic in calculations (IF/THEN/ELSE); Character functions (EDIT, convert, masks); DECODE feature.

SESSION 12: DESCRIBING EXTERNAL FILES

Types of files; How RAMIS knows where things are (Separate topics for CMS and TSO); Fixed format files; Variable external files; VSAM and ISAM files.

SESSION 13: RAMIS FILES

Describing a RAMIS file; Entering data into a RAMIS file; Prompt input; A practice problem.

SESSION 14: MAINTAINING RAMIS FILES

Review of updating concepts; Maintenance commands; computations in updating (COMPUTE); The PRINT command; Validation; Fixed format transactions.

PART III: ADVANCED RAMIS

SESSION 15: ADVANCED FILE MAINTENANCE

The SCAN feature; Formatted screen manager.

SESSION 16: FILE STRUCTURES

File structure concepts; Describing structures; The RELATE command; Reorganizing and reconstructing files.

SESSION 17: THE EXECUTIVE

Review of the Executive; Modifying command files; Programming the command file.

SESSION 18: GRAPHICS

Concepts and overview; Graphs and scatter diagrams; Histograms and bar charts.

SESSION 19: ADVANCED RAMIS FEATURES (Brief overview only)

RAMIS service procedures; Being efficient in RAMIS; Linking to user-written programs; High-resolution graphics; Procedural language interface (RPI); Directed format option (DFO).

App. B:

Catalog for Computer Training

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*Also under MS-DOS.

[1]Many of the CAI packages are also available for other microcomputers; see listings for details.

Computer Literacy

○ ***Personal Computers for the Executive***
Components: Six two-sided cassettes, resource manual
Necessary information for top-level executives to make intelligent decisions about the use of microcomputers in their organizations. Modularized so that even the busiest schedule can be accommodated, the program covers such issues as personal computers within the corporation; software, hardware, and vendor selection; ergonomics; selection of and working with consultants; impact of the personal computer; and applications and trends.
PMM-001 $275.00

△ ***Promedia 1: The Video Computer Primer***
Components: One videotape (60 minutes)
Divided into eight easy-to-understand segments, a demonstration of the capabilities of a personal computer. The segments are: 1) a display of a computer system, including keyboard, display screen, disk drive, floppy diskettes, and printer; 2) the functions of word processing; 3) various uses for numerical manipulations; 4) how to use Database information systems; 5) the benefits of intercomputer communications; 6) educational programs for learning about computers; 7) an introduction to programming and computer languages; 8) color demonstrations of games and entertainment.

PRO-002	¾″	$299.00
PRO-003	½″ VHS	$149.00
PRO-004	½″ BETA	$149.00

□ ***Cdex: Understanding Personal Computers and Their Applications***
Components: Three interactive training diskettes, reference guide
A computer-assisted training program which teaches what computers are all about. It includes extensive examples and hands-on experience with all the capabilities of a personal computer.

CDX-005	IBM PC	$69.95
CDX-006	Apple	$59.95

△ ***Introduction to Personal Computers***
Components: One videotape, reference guide
This program covers all the essentials about personal computers – the terminology – how they work – and how spreadsheets, word processing and data bases can be put to effective use in the office and home. The 28-page reference guide discusses programming and includes a detailed glossary of computer terms and phrases.

MLC-007	½″ Beta	$ 99.95
MLC-008	½″ VHS	$ 99.95
MLC-009	¾″	$129.95

○ □ ***Simplified and Self Taught: Introduction to the IBM PC, Lotus 1-2-3***
Components: Self-paced tutors with print, diskette, audio cassettes, template in a storage binder.
Intended for the intelligent, first-time user who wants to get a quick start to using the PC with basic DOS commands. Professional, yet informal and comfortable, these programs are unique among training materials as they feature a simplification of technical material and a systematic approach with practical, easy-to-use exercises and visuals. Developed by experienced trainers, validated by first-time users. The programs are hands-on and uncomplicated, with information fed a small bit at a time. The clarity of design has drawn acclaim by the most knowledgeable training people.

CAL-09A	Introduction Package (IBM PC)	$150.00
CAL-09B	Lotus 1-2-3 Package (IBM XT)	$180.00

Basic Computer Operation

IBM Personal Computer

○ ***How to Operate the IBM Personal Computer***
Components: Three audio cassettes, operator's guide
A step-by-step audio tutorial for the IBM Personal Computer that guides its users in setting up the system, using special keys and commands, running BASIC programs, and understanding IBM disk-storage procedures (formatting, copying, creating files, renaming, deleting, batch processing, using a hard disk, and much more). It requires the use of IBM's PC-DOS 1.10 diskette. No computer experience is necessary, and no programming is required.
FLS-010 $57.00

△ ***How to Use Your IBM PC In 10 Easy Video Lessons***
Components: One videotape
A production of Kennen Publishing, developers of instructional videotapes for the University of California State System. The ten lesson titles on this tape are: 1) Introduction; 2) Computer Fundamentals; 3) Interconnecting and Using Disks; 4) Using the Keyboard; 5) Software Overview; 6) Files; 7) DOS Operations; 8) Applications Software; 9) Basic Programming; 10) Graduation.

KNN-011	¾″	$199.00
KNN-012	½″ VHS	$120.00
KNN-013	½″ Beta	$120.00

□ ***Cdex Training for the IBM Personal Computer***
Components: Three interactive training diskettes, reference gu
A program for training in the use of the IBM Personal Computer keyboard and DOS commands. It also introduces users to other operating systems, programming languages, and add-on peripherals. After the "how-to" introduction to these subjects, the program gives the user a valuable insight into the underlying concepts and terminology. The menu for the entire program is introduced on Disk 1. This gives new users a complete picture of the program immediately after booting-up the system. This added feature also allows the experienced person to use the program as an instantaneous electronic reference system. The reference guide contains an introduction to Cdex Training for the IBM Personal Computer. user instructions, keyboard function reference, DOS command reference, and practice exercises to reinforce the concepts presented in Disks 1, 2, and 3.
CDX-014 $69.95

□ ***The Instructor***
Components: One interactive training diskette, user's guide and operation booklet
Cited by "The Independent Guide to IBM Personal Computers" (February 1983) as "the best software-format introduction to the IBM PC around." This program teaches users how to interact with the IBM system. The user learns not only the operation of each individual key on the keyboard, but also the manipulation of those keys in combinations and sequences to perform important system activities. Through the use of special Instructor commands, the user learns concepts which help to maximize the use of other application software packages. The user also learns to use menus to select different Instructor activities, including the search through a dictionary of useful PC nomenclature.
ISI-015 $44.95

○ = Audiotape
△ = Videotape
□ = Diskette

Basic Computer Operation (cont.)

☐ ***TexaSoft: Your Personal Computer Tutor***
Components: One interactive training diskette, user's guide
A program to guide users in the use of the IBM PC and other IBM-compatible systems. It contains seven instructional modules, including instruction on the use of the keyboard and of software.
TXS-016 $60.00

☐ ***Professor DOS***
Components: Two interactive training diskettes, user's guide, operation booklet
An interactive, instructional software package designed to teach PC users how to utilize and manage their IBM PC at a higher level. It will provide hours of individual, concentrated, hands-on instruction. Using simulated DOS operations, students are guided through every important application and personal computer concept from the simple to the complex, building on concepts and ideas learned earlier in the course. Each topic is presented in clear, precise, non-technical language.
ISI-017 IBM PC/XT/Comp aq $59.95

☐ ***PC PAL***
Components: One interactive training diskette
This program, designed for beginners, uses games, animation, and sound to teach the PC keyboard, the meaning and importance of software, and how the software operates.
CHS-018 $39.95

☐ ***PC TUTOR***
Components: One interactive training diskette
PC TUTOR takes you to the intermediate level by teaching higher-level computer concepts and PC-DOS. This program creates a dialog between you and your PC. Set your own pace while you learn easily, quickly, and inexpensively.
CHS-019 $79.95

☐ ***PC MASTER***
Components: Three interactive training diskettes
PC Master is the first research-validated, interactive IBM PC training program guaranteed to transform you into a knowledgeable PC user. It provides hands-on participation in the four most-used business applications: word processing, data management, communications, and spreadsheets.
CRW-020 $79.50

☐ ***The Executive's Guide to the IBM PC***
Components: Two diskettes, book
A complete book/disk package for the executive who wants to learn how to program in BASIC on the IBM PC or PC-XT. Working with the book and the disk, the user goes through each chapter learning how to get the most out of the PC. Sample applications include payroll, inventory, commissions, customer statements, and more -- all business-oriented and practical. File manipulation skills are emphasized.
RES-021 $49.95

Apple

○ ☐ ***How to Operate the Apple III***
Components: Four audio cassettes, one interactive training diskette, operator's guide
A guide for first-time users of the Apple III's Operating System. Users learn to set up the computer, understand the keyboard, and run both Apple III and Apple II programs. They also learn to copy diskettes and files, create subdirectories, and install "drivers" for peripherals, such as a printer and a ProFile hard disk.
FLS-022 $110.00

○ ***How to Operate the Apple II Plus***
Components: Three audio cassettes, operator's guide
A quick, easy, nontechnical approach for the nonprogrammer that directs users of the Apple II Plus key and essential commands, running of programs, entering of data, making of backup copies of files and diskettes, protecting and modifying of programs, and more. This is the same self-study course Apple chose to train its own field reps.
FLS-023 $57.00

○ ***How to Operate the Apple IIe***
Components: Three audio cassettes, operator's guide
A quick, easy, nontechnical approach that directs users in Apple IIe keyboard, commands, running programs, entering data, and copying files.
FLS-024 $57.00

△ ***How to Use Your Apple II in 10 Easy Video Lessons***
Components: One videotape
A production of Kennen Publishing, developers of instructional videotapes for the University of California State System. This tape provides step-by-step direction through the procedures of connecting the disk drive to the controller card, copying disks, running FID and muffin, etc. The ten lesson titles are: 1) Introduction; 2) Computer Fundamentals; 3) Assembling Your System; 4) Operating Your Apple II; 5) Using Disks; 6) Running Software; 7) Software Overview; 8) Applications for Software; 9) Programming in BASIC; 10) Graduation.

KNN-025	¾"	$199.00
KNN-026	½" VHS	$120.00
KNN-027	½" Beta	$120.00

△ ***How to Use Your Apple III in 10 Easy Video Lessons***
Components: One videotape
A production of Kennen Publishing, developers of instructional videotapes for the University of California State System. This tape provides step-by-step direction through the procedures of connecting the disk drive to the controller card, copying disks, running FID and muffin, etc. The ten lesson titles are: 1) Introduction; 2) Computer Fundamentals; 3) Assembling Your System; 4) Using the Console; 5) Using Utilities; 6) How to Use Files; 7) Software Overview; 8) Applications for Software; 9) Basic Programming; 10) Graduation.

KNN-028	¾"	$199.00
KNN-029	½" VHS	$120.00
KNN-030	½" Beta	$120.00

☐ ***Cdex Training for the Apple IIe***
Components: Three interactive training diskettes, reference guide
A program to train users in the use of the Apple IIe keyboard and DOS/BASIC commands. It introduces users to other operating systems, programming languages, and add-on peripherals. After the "how-to" introduction to these subjects, the program gives the user a valuable insight into the underlying concepts and terminology. The reference guide contains an introduction to the Cdex Training for the Apple IIe, user instructions, keyboard function reference, DOS/BASIC command reference, Apple IIe error messages and corrective actions, and practice exercises to reinforce the concepts presented in Disks 1, 2, and 3.
CDX-031 $59.95

Operating Systems/Programming Languages

○ ***How to Operate Your Computer Under CP/M***
Components: Three audio cassettes, operator's guide
An instructional guide to any computer that uses the CP/M operating system. Users become familiar with the most common CP/M commands for formatting and copying diskettes, copying and erasing files (including "wildcard" shortcuts), creating and editing documents, and using batch processing to run application programs.
FLS-032 $60.00

□ ***ATI Training Power: Operating Systems***
CP/M; PC-DOS
Components (each course): One interactive training diskette, user's handbook
ATI's Operating System Series teaches users twelve of the most common commands, including displaying the directory, copying files and disks, and renaming files. Users learn to prepare, monitor, maintain, and troubleshoot a system.

ATI-033	CP/M	$75.00
ATI-034	PC-DOS	$75.00
ATI-035	Apple-DOS	$75.00

□ ***ATI Training Power: BASIC Programming***
MBASIC (IBM or CP/M)
Components: One interactive training diskette, user's handbook
A basic programming series that teaches users to write, enter, debug, and use programs that analyze business expenses, organize mailing lists, and more.

ATI-036	MBASIC (IBM)	$75.00
ATI-037	MBASIC (CP/M)	$75.00

□ ***BBASIC***
Components: One interactive training diskette
BBASIC uses a simplified version of BASIC to introduce managers to programming. It makes BASIC less overwhelming by breaking it down into 13 units. Besides an introduction, it includes lessons on immediate and deferred modes, disk manipulations, variables and input branching, loops, simple graphics, subscripted variables, flow charting, conditional branching, subroutines, arrays, vested loops, and debugging.

CPX-038	Apple	$130.00
CPX-039	IBM PC	$130.00

□ ***IBM Teach***
Components: Two interactive training diskettes, user's guide
A highly interactive tutorial to teach the novice how to initiate simple BASIC Programs or run commercial application programs. Segments on keyboard interactions, operating system (PC-DOS) commands, high level language (BASIC) programming, and an introduction to major software applications are included. Additional background information covering hardware, memory, and machine language help orient the user to the workings and capabilities of the IBM Personal Computer.
RES-040 IBM PC $75.00

□ ***TeachIM***
Components: Two interactive training diskettes, user's guide
This program shows the user how to use the CP/M operating system. Special features enable the user to learn CP/M in as little as 90 minutes. Easy to use. Clear and concise, non-technical language. Explains commands and directs user in their uses.
RES-041 Apple II, IIe $75.00

□ ***BASIC Teach***
Components: One interactive training disk, user's guide
An interactive tutorial on the BASIC language. Two parts make up the tutorial: 1) Learning BASIC commands 2) Using BASIC commands.
RES-042 Apple II, IIe $75.00

Business Applications Training

○ ***Personal Tutor Audio Courses***
□ Components (each course): Three 90-minute audio cassettes, one interactive training diskette, reference guide
In each of these three-part programs, the first audio cassette leads the beginner step-by-step through the major and sub-commands of the application, emphasizing practical demonstration through a hands-on approach. The second audio cassette deals with functions and shows the user how to get the maximum use from the particular program. The third cassette, together with the interactive tutorial diskette, encourages the user to apply what has been learned and then provides instruction on the advanced features of the applications program.

PTA-043	VisiCalc (IBM PC)	$49.95
PTA-044	VisiCalc (Apple)	$49.95
PTA-045	WordStar (IBM PC)	$49.95
PTA-046	WordStar (Apple)	$49.95
PTA-047	Applewriter (Apple)	$49.95
PTA-048	DB Master (IBM PC)	$49.95
PTA-049	DB Master (Apple)	$49.95
PTA-050	PFS File/Report (IBM PC)	$49.95
PTA-051	PFS File/Report (Apple)	$49.95
PTA-052	dBASE II (IBM PC)	$59.95
PTA-053	dBASE II (Apple)	$59.95

Free Subscription

Dialogue Systems, Inc. would also like to take this opportunity to offer you a free trial subscription to our newsletter, ***DSI Micro Training UPDATE***. This monthly publication, a $59 per-year value, brings together for the trainer information on new micro-related training products, how trainers around the country are using microcomputers, and computer-industry developments of interest to training professionals. A **free three-month** subscription will be sent to you with your order from ***DSI Micro Training.***

○ = Audiotape
△ = Videotape
□ = Diskette

Business Applications Training (cont.)

□ ***Deltak Teach Yourself Software***
Components (each course): Two interactive training diskettes, exercise handbook
The tutorial diskettes guide and prompt the learner through a series of lessons designed to increase proficiency in the use of the program. The exercise handbook completes this integrated package. Nontechnical language takes you step by step through these 90-minute self-paced courses. All programs are available for use with the IBM PC or PC-XT.

DLK-054	Teach Yourself VisiCalc	$ 80.00
DLK-055	Teach Yourself VisiCalc Advanced Version	$ 80.00
DLK-056	Teach Yourself VisiWord	$ 80.00
DLK-057	Teach Yourself WordStar	$ 80.00
DLK-058	Teach Yourself dBASE II	$ 80.00
DLK-059	Teach Yourself dBASE II, Extended Features	$ 80.00
DLK-060	Teach Yourself Lotus 1-2-3	$ 80.00
DLK-061	Teach Yourself VisiTrend/Plot	$ 80.00
DLK-062	Teach Yourself Multiplan	$ 80.00
DLK-063	Teach Yourself T K Solver	$ 80.00
DLK-064	Teach Yourself PC-DOS	$100.00
DLK-065	Teach Yourself BASIC	$100.00
DLK-067	Teach Yourself Concurrent CP/M	$100.00

□ ***Blue Chip 1: Introduction to Micro Applications***
Components: Two interactive training diskettes, user's manual
Designed for the business professional, this microcomputer literacy program leads the learner through basic financial planning, business communications, data base management, and project management jobs by using six software applications. These include: electronic spreadsheet, business graphics, data base, communications, scheduling, and word processing. Lessons are interactive and modular. The IBM keyboard is explained, and a glossary is always on call.

MCW-068	IBM PC / IBM Compatible	$99.95

Electronic Spreadsheet Analysis

○ ***How to Use VisiCalc***
Components: Four audio cassettes, lesson summary
An introduction to each VisiCalc command and a guide to the creation of a user's own spreadsheet from scratch. This guide begins by showing users how to enter labels, values, and formulas, and then moves to more advanced concepts such as *replicate, choose, lookup,* and *NPV.*

FLS-069		$75.00

△ ***Learning Concept: The VisiCalc Program***
Components: One videotape, reference guide
"The VisiCalc Program" is a 58-minute videotape designed to teach microcomputer end users how to set up and utilize VisiCalc in less than an hour. Using the case study method, the viewer builds and modifies his own sample spreadsheet, learning VisiCalc's commands and features as the spreadsheet grows. The quick reference guide contains keyboard and screen reference charts, as well as easy-to-read descriptions and instructions of the VisiCalc commands.

MLC-070	Beta	$ 99.95
MLC-071	½" VHS	$129.95
MLC-072	¾"	$139.95

□ ***ATI Training Power: Financial Planning***
SuperCalc, VisiCalc, Multiplan, Microplan, Perfect Calc, and EasyPlanner
Components (each system): One interactive training diskette, user's handbook
ATI's Financial Planning Series teaches users how to create, modify, manipulate, save, retrieve, label, and print sophisticated financial tables. Users also learn how to perform "what-if" analyses and other financial planning functions. Each program allows users to print and practice with sample worksheets.

ATI-073	SuperCalc (IBM PC)	$75.00
ATI-074	SuperCalc (CP/M)	$75.00
ATI-075	VisiCalc (IBM PC)	$75.00
ATI-076	VisiCalc (Applesoft)	$75.00
ATI-077	Multiplan (IBM PC)	$75.00
ATI-078	Multiplan (CP/M)	$75.00
ATI-079	Microplan (IBM PC)	$75.00
ATI-080	Microplan (CP/M)	$75.00
ATI-081	Perfect Calc (IBM PC)	$75.00
ATI-082	Perfect Calc (CP/M)	$75.00
ATI-083	Easy Planner (IBM PC)	$75.00
ATI-084	Easy Planner (CP/M)	$75.00

□ ***ATI Training Power: Lotus 1-2-3***
Components: One interactive training diskette, user's manual
This program is a comprehensive supplement to the tutorial furnished by Lotus. The user learns to load and operate Lotus 1-2-3, create a database, conduct analyses, prepare spreadsheets, and print memos that include spreadsheets and graphs.

ATI-085	IBM PC	$75.00

□ ***Cdex Training for VisiCalc***
Components: Three interactive training diskettes, reference guide
The complete package consists of two tutorial disks which provide a step-by-step approach to the major VisiCalc features; a reference disk which functions as an electronic "quick reference guide"; and a complete reference guide which contains exercises and examples for the new user and a quick reference section for experienced users. Disk 1 begins with the very basics of VisiCalc, including key terms, moving the cursor, labeling columns and rows, entering values and formulas, and working with functions. Disk 2 presents more complex VisiCalc features, including using commands, saving and retrieving your work, printing your work, and replicating – the concept and the process. The Cdex reference guide serves as a handy supplement to the two diskettes. The reference guide contains exercises and command references to reinforce the concepts presented in the tutorial diskettes.

CDX-086	IBM PC	$59.95
CDX-087	Apple IIe	$59.95
CDX-088	Apple II Plus	$59.95

□ ***Cdex Training for SuperCalc***
Components: Two interactive training diskettes, reference guide
A program to train SuperCalc users how to work with the full range of SuperCalc's capabilities. For example, it introduces users to the entry of numbers and labels, the use of commands, and the creation and execution of command files. The combination of diskette-based tutorials and the reference guide provides the new and experienced user with a complete system for learning and for efficient use of the SuperCalc program.

CDX-089	IBM PC	$69.95
CDX-090	Apple IIe	$59.95
CDX-091	Apple II Plus	$59.95

☐ ***Cdex Training for Managing your Business with Lotus 1-2-3 or Multiplan***
Components (each course): Three interactive training diskettes, reference guide
Especially designed for the business person who wants to take full advantage of the extensive capabilities of Lotus 1-2-3 or Multiplan. Totally interactive and self-paced, this program takes the user step by step through all aspects of Lotus 1-2-3 or Multiplan.

CDX-092	Managing your Business with Lotus 1-2-3 IBM PC	$69.95
CDX-093	Managing your Business with Multiplan IBM PC	$69.95
CDX-094	Managing your Business with Multiplan Apple	$59.95

☐ ***Visiteach***
Components: One interactive training diskette, user's guide
This hands-on software package and tutorial teaches the novice how to use VisiCalc and create VisiCalc applications. Also included is a complete scenario showing how to use VisiCalc more effectively. The program operates on an Index format – just select a topic and go to that section of the program.

RES-095	IBM PC	$75.00

☐ ***QUE Super Models***
Components (each program): Two interactive training diskettes, book
These programs contain models from Que Corporations best-selling how-to books for various applications software. Although the software and the book can each stand alone, together, they make a very effective training team. Available for the IBM PC or PC-XT.

QUE-096	SuperCalc	$99.00
QUE-097	VisiCalc	$99.00
QUE-098	Lotus 1-2-3 for Business	$99.00
☐ QUE-099	Multiplan for Business	$99.00

VisiTutor
Components: One interactive training diskette, user's guide
From VisiCorp, producer of VisiCalc, comes tutorials for VisiCalc and VisiCalc Advanced Version.

VIS-100	VisiTutor (Apple)	$79.95
VIS-101	VisiTutor (IBM PC)	$79.95
VIS-102	VisiTutor Advanced Version (Apple)	$99.95
VIS-103	VisiTutor Advanced Version (IBM PC)	$99.95

Word Processing/Keyboarding

○ ***How to Use WordStar***
Components: Three audio cassettes, one user's guide
A guide to the full-capability use of the leading word-processor software for microcomputers. Users learn to create their own documents, edit, reorganize, merge, format, and print. The program helps users to master commands for underscoring, boldfacing, page headings, subscripts, search and replace, and microjustification, among others.
FLS-104 $57.00

○ ***How to Use WordStar & Mailmerge***
Components: Four cassettes, user's guide
A guide to the use of the full WordStar program, including a lesson on how to prepare form letters and mailing lists, how to insert and adjust "boilerplate" documents, how to print multiple copies, and more.
FLS-105 $75.00

☐ ***ATI Training Power: WordProcessing***
WordStar, Benchmark, EasyWriter II, Spellbinder, Perfect Writer
Components (each system): One interactive training diskette (except for WordStar, which has two diskettes), user's handbook
ATI's WordProcessing Series teaches the basic functions of the word processing system in a self-paced, interactive format. ATI's WordStar is a special program which features two training diskettes for this leading word processing package. One focuses on the use of the WordStar menu, and the second provides instruction on all the WordStar commands. Entitled Menu-Power and Command Power, this unique "Power-Pack" approach teaches the user how to create, revise, format, and print professional-appearing correspondence and reports. Advanced features such as block operations, search and replace, and format control are included. ATI's programs for Benchmark and EasyWriter II teach the user how to create, edit – with insert, delete, and strike-over methods – and print documents. The Spellbinder program teaches the user to set up, keyboard, edit, print, and store documents, as well as move copy within documents. Perfect Writer includes all the basic word processing functions as well as the special feature of checking spelling within a document that has been keyboarded.
Each program is available for the IBM PC or under the CP/M operating system.

ATI-106	WordStar (IBM)	$75.00
ATI-107	WordStar (CP/M)	$75.00
ATI-108	Benchmark (IBM)	$75.00
ATI-109	Benchmark (CP/M)	$75.00
ATI-110	EasyWriter (IBM)	$75.00
ATI-111	EasyWriter (CP/M)	$75.00
ATI-112	Spellbinder (IBM)	$75.00
ATI-113	Spellbinder (CP/M)	$75.00
ATI-114	Perfect Writer (IBM)	$75.00
ATI-115	Perfect Writer (CP/M)	$75.00

☐ ***Cdex Training for Word Processing***
Components (each program): Three interactive training diskettes, reference guide
A straightforward, efficient, computer-assisted approach to learning your word processing program. These programs are highly interactive, completely self-paced, graphically oriented, and can be used again and again by both beginners and experienced users.

CDX-116	WordStar Training (IBM PC)	$69.95
CDX-117	WordStar Training (Apple)	$59.95
CDX-118	EasyWriter II Training (IBM PC)	$69.95
CDX-119	EasyWriter II Training (Apple)	$59.95

☐ ***Type and Learn***
Components: One interactive training diskette, instructional manual
A program designed for the beginner, the intermediate, or the advanced typist. A keyboard image on the screen guides the beginner. Intermediate and advanced typists are also taught microcomputer information through the use of computer words, definitions, and paragraphs of information in the typing drills. Speed and accuracy are calculated.

SIM-120	IBM PC	$60.00

Business Applications Training (cont.)

☐ ***Master Type***
Components: One interactive training diskette, user's guide
A program to teach touch-typing with a bang, requiring the user to type a word in a box before missiles blow up the box. Missiles become faster and more accurate as the typist improves. The program features seventeen progressive tutorials, interactive guidance, problem diagnoses, automatic scoring, and control over speed and difficulty.

LGS-121	Apple	$39.95
LGS-122	IBM PC	$49.95

Database

☐ ***ATI Training Power: Database Management***
dBASE II (IBM or CP/M); EasyFiler (IBM)
Components (each system): One interactive training diskette, user's handbook
ATI's Database Management Series teaching users to create a database, to enter data, and to sort data—plus how to add, modify, change, and edit important data in order to generate comprehensive reports and to update mailing lists.

ATI-123	dBASE II (IBM)	$75.00
ATI-124	dBASE II (CP/M)	$75.00
ATI-125	EasyFiler (IBM)	$75.00

Accounting

☐ ***ATI Training Power: Accounting***
Components (each system): One interactive training diskette, user's handbook
ATI's Accounting Series covers, for each accounting package shown below, how to set up the accounting system, make entries, cash disbursements, cash receipts, trial balances, accounts receivable, and accounts payable, as appropriate. All features of the program are covered in an easy-to-understand, self-paced manner.

ATI-126	BPI General Accounting (IBM PC)	$75.00
ATI-127	General Accounting (CP/M)	$75.00
ATI-128	Peachtree General Ledger (IBM/PC)	$75.00
ATI-129	Peachtree General Ledger (CP/M)	$75.00
ATI-130	Peachtree Accounts Receivable (IBM PC)	$75.00
ATI-131	Peachtree Accounts Receivable (CP/M)	$75.00

☐ ***Teach Yourself Essentials of Accounting***
Components: Four interactive training diskettes, handbook
A program providing a solid understanding of essential accounting principles in a self-study format. The course requires only 20 hours to complete, with 5 additional hours of optional testing. Users are taught the basic concepts of balance sheets, accounting records and systems, revenues and monetary assets, income statements, financial statement analysis, and more. A thorough, self-paced course for either the novice or a refresher course for the more experienced user.

ADW-132	IBM PC or PC-XT	$79.95

Applications Software

From VisiCorp®

☐ ***VisiCalc***
Components: One diskette, user's guide
A powerful electronic worksheet that allows users to solve involved number problems that usually take hours. VisiCalc features a worksheet 63 columns wide and 254 lines deep, a recalculation option that lets you substitute numbers or formulas in a calculation, a replication option, a "window" option that lets you split the screen either horizontally or vertically, and math functions ranging from the very simple to the very complex. The program allows you to print full worksheets, as well as lists of worksheet formats and formulas.

VIS-133	Apple II and II Plus (48K, 40-column display)	$250.00
VIS-134	Atari 800 (32K, 40-column display)	$250.00
VIS-135	PET 2020, 4040, and 8050	$250.00
VIS-136	IBM PC	$250.00

☐ ***VisiFile***
Components: One diskette, user's guide
A comprehensive electronic filing system that makes it easy to organize, maintain, and more effectively use information. This program will instantly and accurately store, search, sort, retrieve, display, calculate, and print reports, lists, and even mailing labels. It also sorts alphabetically or numerically in ascending or descending order. The package lets you print reports in tabular or nontabular format with free-form output, allows easy changes in information and file format, and works easily with other VisiCorp packages.

VIS-137	Applesoft	$250.00
VIS-138	IBM PC	$300.00

☐ ***VisiSchedule***
Components: One diskette, user's guide
A powerful project planner that gives the user both the overview and the details needed to control projects, meet deadlines, level resources, and beat cost targets. VisiSchedule instantly shows skills levels, costs, and the critical path among project tasks. It allocates all costs and specifies earliest and latest start dates, slack times, holidays, prerequisites, and deadlines for each task. VisiSchedule also produces comprehensive summaries, calendar time charts, milestones, and other reports.

VIS-139	Apple II or II Plus (48K memory)	$300.00
VIS-140	Apple III (128K)	$300.00
VIS-140A	IBM PC	$300.00

☐ ***VisiTrend/Plot***
Components: One diskette, user's guide
A package that allows you to easily input, transform, and project time-series data and to quickly see the results in professional-looking charts and graphs. It will automatically produce line, bar, pie, area, x-y, and hi-low charts with numerous variations and options. The program will help users to simplify statistical calculations, understand cause-and-effect relationships between data series, and anticipate future trends. It automatically performs multiple linear regression, trendline forecasting, percent change, lead, lag, moving average, smoothing, and many other transformations.

VIS-141	Applesoft	$300.00

☐ ***PFS: File, Report, Graph, and Write***

Components (each program): One diskette, user's guide

PFS: File allows you to create a basic form, fill in data, retrieve data by several methods, display all pertinent files, and print selected items. It can be used for a variety of applications, including inventory, cataloging materials, books, indexing, student records, and financial records.

PFS: Report allows you to produce reports from PFS: File in table form. It produces presentation-quality reports on any information by sorting, and will do such calculations as averages, totals, subtotals, and percentages.

PFS: Graph gives you presentation-quality bar charts, line graphs, and pie charts in color or black-and-white. Working with information from PFS: File or VisiCalc or with new information keyed into the computer, users can display up to four graphs on a single set of axes, either side-by-side or mixed-and-matched.

PFS: Write is a complete word processing program that works with other PFS programs.

SPC-142	Apple	PFS File	$125.00
SPC-143	Apple	PFS Report	$125.00
SPC-144	Apple	PFS Graph	$125.00
SPC-145	Apple	PFS Write	$125.00
SPC-146	IBM	PFS File	$140.00
SPC-147	IBM	PFS Report	$125.00
SPC-148	IBM	PFS Graph	$140.00
SPC-149	IBM	PFS Write	$140.00

☐ ***The Incredible Jack***

Components: One interactive training diskette, user's guide

An integrated applications software package that performs word processing, data base storage and retrieval, and calc analysis. This versatile program creates documents up to 60 pages, provides a complete, flexible filing system (up to 1,000 records in each file, up to 100 fields in each file), and performs arithmetic and algebraic operations. It enable you to integrate calculations and documents, create form letters, create mailing lists, and work with hypothetical situations. (Requires Apple II or IIe, 64K, dual disk drive.)

BSI-150	$179.95

☐ ***Super-Text Professional***

Components: One diskette, user's manual

Super-Text offering ease of use and a combination of powerful, advanced features. It teaches the basics of text editing within minutes and provides advanced features to meet your expanding word-processing requirements. Super-Text features include single-key cursor control; automatic word overflow; character, word, and line insertion; forward and backward scrolling; automatic on-screen tabbing and paragraph indentation; character, word, and line deletion; and ditto key, chapter-relative page numbering, split screen, and built-in floating-point calculator.

MUS-151	Apple	$99.00
MUS-152	IBM PC	$99.00

☐ ***The Bank Street Writer***

Components: One diskette, user's guide, one back-up disk

A combination of power and ease of use in a word processor that will make beginning writers' work more enjoyable and speed up teachers' and administrators' writing. *The Bank Street Writer* does not sacrifice on features, however. It contains add, move, insert, and erase options; universal search and replace; automatic entering and indentation; automatic word wrap; potent-print format routines in all memory; password protection; document chaining; highlighting and upper-and lowercase letters. It also includes tutorial and utility programs, a comprehensive user's guide, and a back-up disk.

BDR-153	Apple	$69.95
BDR-154	IBM PC	$69.95

File Management/Data Base

☐ ***The Data Factory***

Components: Two master disks, two back-up disks, one illustrated manual

Designed to adapt the Apple II 48K for special record-keeping needs. The program has the following features: exclusive flexible entry that allows more information to be positioned anywhere on the monitor; a flexible retrieval system that selects records by any criteria; the tailoring of reports to any format (does not require user to have special program knowledge); a free one-year warranty for replacing blown disks; and updated versions at no cost.

MCL-155	Apple II		$300.00
MCL-156	Apple II	Hard disk	$500.00

☐ ***dBASE II***

Components: Two diskettes, user's manual

This is a complete applications development package. It can eliminate up to 80% of the code it is necessary to write. It is a speedy relational data base system that will allow easy entry and cross referencing virtually any type and any amount of data. (Requires CP/M 86 for the IBM PC and the Z-80 card for the Apple.)

ASH-157	IBM PC	$700.00
ASH-158	Apple	$700.00

Accounting

Solomon

Components: Diskettes and comprehensive user's manuals

Sophisticated, integrated, accounting, software systems, the Solomon I and II packages handle general ledger, payroll, accounts payable and receivable, invoicing, fixed assets, cash receipts and disbursements, and address list maintenance. Solomon II also includes a job management and job costing package that can be used by engineers, architects, consultants, contractors, and other service businesses. (Requires 64K RAM, Baby Blue CPU Card, 132 Column Printer; Hard Disk Recommended)

CPG-159	Solomon I (IBM PC XT)	$2595.00
CPG-160	Solomon II (IBM PC XT)	$3495.00

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○ = Audiotape
△ = Videotape
☐ = Diskette

Applications Software (cont)

Utilities/Communications

Quadlink
Components: Interface card
Run Apple-compatible programs on your IBM PC or PC XT with this easy-to-install card. No reformatting necessary.
QDR-161 IBM PC, PC XT $680.00

☐ ***TeloFacts***
Components: One diskette, user's guide
The microcomputer software package to design, use, and evaluate questionnaires. Responses are entered manually. TeloFacts analyzes and summarizes data in a number of ways.
DLS-162 Apple II or IIe $ 49.95
DLS-163 IBM PC $ 49.95

☐ ***TeloFacts II***
Components: One diskette, user's guide
The program following TeloFacts I, TeloFacts II provides additional report linkages, listings, and scoring options. Responses are entered manually, or with a Mountain Computer Automatic card reader.
DLS-164 Apple $199.00
DLS-165 IBM PC $199.00

☐ ***Decision-Analyst***
Components: One diskette, user's guide
A program to deal with the process of evaluating complex decisions with multiple alternatives and many criteria. The program asks the user for the minimum input in the correct sequence, then takes the user step by step through the decision-making process. Multiple revisions to criteria, alternatives, weights, values, etc., are quickly calculated by the program which then produces polished reports. Input is stored and easily updated. Requires CP/M or MS/DOS.
ESI-166 $149.00

Scheduling and Budget Control

☐ ***PMS-II***
Components: One diskette, user's guide
A comprehensive, easy-to-use program that will schedule your projects and monitor your budgets, PMS-II is a complete critical path network analyzer. It will calculate the early start/finish and late start/finish dates, float time, and critical path for project networks of over 2,000 user-defined activities. A complete array of user-defined management reports allows you to sort from up to six fields and optionally suppress budget and actual amounts. In addition, PMS-II provides all mandatory and optional government contract reporting requirements as defined in the Corps of Engineers Project Management Specifications ER-1-1-11.
DSI-167 IBM PC $1295.00
DSI-168 Demonstration system and user's manual $50.00 (applicable towards price of full system)

Specialized Software Tools for Instructional Development

☐ ***Memory Shift***
Components: One diskette, user's guide
A program that allows running up to nine programs on an ICM PC/XT at the same time. Especially useful for running a training program and an applications program simultaneously. Data can be moved from one program to another; two programs can be seen at the same time with dual monitors.
NAB-169 IBM PC, PC XT $ 99.00

Authoring Systems

☐ ***The Author***
Components: Two diskettes, user's manual
Turn your computer into a patient, consistent, personal teacher in just a few hours. Designed for the novice computer user, this unique teaching tool guides you carefully through interactive computer lesson development. The Author can be used successfully to produce the following basic kinds of self-instructional, interactive computer lessons: 1) *Drill and practice* packages, to build skills by teaching basic principles and allowing frequent interactive practice; 2) *Instructional* packages, to convey important concepts and principles by presenting information in small segments and obtaining frequent responses; and 3) *Simulation packages*, to teach problem-solving and applied thinking.
PHX-170 Apple II $195.00
PHX-171 IBM PC $195.00

☐ ***CALL Computer Assisted Learning Language***
Components: One diskette, user's manual
Taking full advantage of the many features of the IBM PC such as sound, color, and character graphics, the CALL program also contains an extensive editor, a grading program, and other utility programs. This system allows the trainer to author sophisticated computer tutorials, CAI instructionals, and computer-driven tests, with a minimum of computer knowledge.
TXS-172 IBM PC/XT $450.00

☐ ***DSI Interactive Video Authoring***
Components: Two diskettes, one manual
A program to allow you to develop interactive video from existing videotapes. Using an interface to allow your microcomputer and VTR to interact, the user synchronizes the frames, segments learning areas, and develops CAI. An easy-to-use authoring system for trainers who develop their own instructional materials. Contact us for further information.
DSI-173 Apple/IBM $2300.00

CAI for Staff Development

☐ ***Millionaire***

Components: One diskette, user's guide

Millionaire is a stock-market simulation game which doubles as an educational vehicle for learning about investment finance. The program realistically traces results of investment decisions in the marketplace. *Millionaire* allows a player using a microcomputer to compress 77 weeks of stock trading into a two-hour exercise.

BLC-174	Apple	$ 59.95
BLC-175	IBM PC	$ 59.95
BLC-176	Osborne I/II	$ 59.95
BLC-177	8"CPM 86	$ 59.95

☐ ***The Micro Employee Career Management Program***

Components: One interactive training diskette

The objective of this simulation of corporate life is to teach job maintenance political behavior: how to keep your job and advance in the organization. Each career ladder has rungs that must be climbed, problems that must be solved, conflicts that must be resolved.

CDV-178	Apple	$150.00
CDV-179	TRS-80 Model III	$150.00

☐ ***The Micro Art of Interviewing***

Components: One interactive training diskette

The *Micro Art of Interviewing* contains four programs: The Worst Interview in History, The Four Stages of Interviewing, Skill Identification, and Interview Stress. These programs are designed to demonstrate the kind of stress-overload students can expect in an interview. Designed for students ready to enter either the part-time or full-time job market, or for employees contemplating a career upgrade.

CDV-180	Apple	$150.00
CDV-181	TRS-80 Model III	$150.00

☐ ***E.S.P.***

Components: Three interactive training diskettes

E = Expectations of how to communicate expectations on the job. This program deals with the three major issues confronting every manager: power struggle, ambiguous words, and crystal-balling. *S* = Skills: Specific administrative steps managers need to use when planning departmental goals — the how, what, who, when and where. *P* = Payoffs — human relations skills. What really motivates workers? Four reasons why people work: security, power, achievement, and recognition.

CDV-182	Apple	$200.00
CDV-183	TRS-80 Model III	$200.00

☐ ***The Work Activities Inventory***

Components: One interactive training diskette

This program is a 30-item inventory designed to introduce the student to six major interest areas: The Doers, The Investigators, The Creators, The Helpers, The Influencers, and The Organizers. The WAI provides useful labels to begin discussing preferred work activities in the counseling session.

CDV-184	Apple	$109
CDV-185	TRS-80	$109

☐ ***Participative Management Skills***

Components: Five interactive training diskettes, work text

The Concourse seminar program offers users the opportunity for classroom instruction. This option offers the advantage of computer programs as stand-alone programs or in conjunction with one another. The dual delivery system provides the learner with a full range of learning experiences. The subject of the program is developed with the goal of increasing the business and management skills of the user. Two media are used to present the course on participative management. The text, which provides interactive learning experiences, *Participative Management Skills* consist of the following parts: Choosing Participation, Enhancing Power, Facilitating Team Communication, Understanding Motivational Dynamics, and Achieving Consensus.

CNC-186	IBM PC	$195.00
CNC-187	Apple	$195.00

☐ ***The Assessment Survey Kit***

Components: One diskette, user's guide

Developed by Dr. Karl Albrecht, a program designed for people who use questionnaire surveys in training, personnel work, or market research training-program evaluations, needs assessments, employee-climate surveys, quality of work-life surveys, and general questionnaires are all easier and more convenient with A.S.K.

KAA-188	Apple	$295.00

☐ ***M.A.R.T.***

Components: One interactive training diskette

This program is a no-nonsense, practical guide to stress-overload prevention and intervention. Written for managers, supervisors, and advanced business students, the *MART* disk is organized around four steps found in the *MART* process: Management, Aware, Reduction, and Toleration.

CDV-189	Apple	$109.00
CDV-190	TRS-80 Model III	$109.00

☐ ***Speed Reader II***

Components: Two interactive training diskettes, user's manual

A program designed to lengthen your attention span and improve your concentration so that you can absorb information faster. Comes with an easy-to-use editor which allows you to enter your own reading selections or choose from a selection of 35 already programmed. Printing, color, testing, and reading level options are included. Extensively field-tested, with excellent results.

DVA-191	Apple	$69.95
DVA-192	IBM	$69.95

☐ ***Communicate and Win***

Components: One interactive training diskette, reference manual

This program gives you the power to influence anyone with a scientifically prepared plan for persuading anyone to "buy" your product, service, or idea. *Communicate and Win* gives you a *Game Plan*, a "road map" so to speak, in twenty key areas for negotiating anything with anyone. This Game Plan is not a series of time-worn cliches, but an individualized custom-tailored printout for each and every person with whom you will ever deal — in both your personal and professional life. Tested and used extensively in the United States and Europe and based on years of research in the behavioral sciences, Game Planning will help you get "inside" your listener's mind, understand how the decision to "buy" is made, and help you structure your presentation, so the listener does listen.

PSA-193	Apple	$250.00
PSA-194	IBM, PC, PC XT (enhanced version)	$495.00

CAI for Staff Development (cont.)

☐ ***The Sales Edge***

Components: Two interactive training diskettes, user's guide, sales manual, ten prospect worksheets

This program helps salespeople present themselves and their products in the manner most appealing to prospective customers. *The Sales Edge* increases productivity by helping the salesperson adjust his or her distinct style to that of the customer, targetting in on the latter's unique desires. The printed strategy includes suggestions on how best to gain the customer's attention, conducting the sales presentation and proper "closing." The salesperson can enter data as the sales follow-up continues over time through visits and telephone calls. The user can also try likely tactics against a mock customer prepared by the computer.

HME-195	Apple	$250.00
HME-196	IBM-PC	$250.00

☐ ***The Management Edge***

Components: Two interactive training diskettes, user's guide, management manual, ten employee worksheets

To help managers tackle difficult management problems, this software implements the latest management theory and research for resolving conflicts between managers and subordinates. A printed report offers strategies for problem solving in specific situations including raising productivity, increasing performance, improving communications, effective discipline, firing, and subordinate placement. In addition, users may evaluate their managerial skills against those of their superiors. The program includes recommendations for developing influence with superiors, compensating for deficits in superiors, and determining compatibility within the organization.

HME-197	Apple	$250.00
HME-198	IBM-PC	$250.00

☐ ***The Negotiation Edge***

Components: Two interactive training diskettes, user's guide, negotiation manual, ten negotiation worksheets

This program is designed to help develop strategies for conducting negotiations in situations ranging from buying a car to reaching a union agreement to investing corporate funds. The user provides information on himself, or herself, on the opponent, on the negotiation range of likely bids, and information on the reason for the negotiation itself. A manual helps the user to assess the actual negotiation range as well as the opponent's strengths and weaknesses. Worksheets are also included. The computer prepares a printed negotiation plan organized sequentially to match the actual negotiation.

HME-199	Apple	$250.00
HME-200	IBM-PC	$250.00

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CNC Concourse
CPG Computech Group
CRW Courseware
CPX Computrix
DLK Deltak
DLS Dilithium Software
DSI Dialogue Systems, Inc.
DVA Davidson & Associates
ESI Executive Software, Inc.
FLS FlipTrack Learning Systems
HME The Human Edge
ISI Individual Software
KAA Dr. Karl Albrecht & Associates
KNN Kennen Publishing
LGS Lightning Software
MCL Microlab
MCW Micro Courseware
MLC Micro Learning Concepts
MUS Muse Software
NAB North American Business Systems
PHX Phoenix
PMM Peat, Marwick, Mitchell & Co.
PRO Promedia
PSA Persona
PTA Personal Tutor Associates
QDR Quadrum
RES Reston Publishing
SIM Simsoft, Inc.
SPC Software Publishing Company
TXS TexaSoft
VIS VisiCorp

○ = Audiotape
△ = Videotape
☐ = Diskette

Order Form

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Micro Division
Dialogue Systems, Inc.
770 Broadway, New York, New York 10003

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Payment Enclosed

American Express orders accepted / Card #

Valid From: To:

Program Order No.	Page No.	Title	Cassette (C) Video (V) Disk (D)	Quantity	Unit Price	Total

FREE PROGRAM

Indicate Microcomputer Type _____ Model _____ Memory in RAM _____ DOS Model _____

CPM Please send additional catalogs

Comments:

DSI Micro Catalog Supplement

1984 Training West Conference Special

Computer Literacy

□ **Knoware**

Components: Training Diskette, user's guide

Knoware combines basic personal computer education plus six applications-spreadsheets, word processing, data base, BASIC programming, graphics, and financial decision support–in one easy-to-understand interactive program. This comprehensive package uses a game format to aid the user in choosing available software applications. Designed for use at work or home.

KNO-001	IBM PC, XT(128k)	$95
KNO-002	Apple IIe, II+(64k)	$95

Basic Computer Operations

○ **Micro-Instructional Audio Tutorials**

Components: Audio cassettes, tutorial

Designed for use in conjunction with the hardware and operating system listed below, these introductory-level tapes provide the new user with an hour of fundamental information and instructions on utilizing the system.

MII-003	Columbia MS-DOS	$ 49.95
MII-004	Compaq MS-DOS	$ 49.95
MII-005	DEC Rainbow	$ 49.95
MII-006	Texas Instruments Professional CP/M	$ 49.95
MII-007	Texas Instruments Professional DOS	$ 49.95
MII-008	Texas Instruments Professional (hard disk)	$ 49.95
MII-009	Victor 9000 CP/M 86	$ 49.95
MII-010	Victor 9000 DOS	$ 49.95
MII-011	Xerox 820-II	$ 49.95
MII-012	Zenith 90 (H-89) CP/M	$ 49.95
MII-013	Zenith 100 CP/M	$ 49.95
MII-014	Zenith 100 DOS	$ 49.95

○ **FlipTrack Learning Systems Audio Courses**

Components: Audio cassettes, user's guide

Learn by listening with these self-study audio courses. Each program directs "hands-on" applications while the user proceeds at his or her own pace, selecting the appropriate subjects and information from the cassettes.

FLS-015	How to Operate the IBM PCjr	$39.95
FLS-016	How to Operate the Apple IIe ProDOS	$57
FLS-017	How to Operate the Apple III or III plus	$119
FLS-018	How to Operate the IBM XT (DOS 2.0)	$75
FLS-019	How to Operate the Texas Instruments Professional	$75

△ **IBM PC: A Beginner's Guide to the Personal Computer**

Components: Videotape, packet of ten participant's guides

This program introduces the five basic components of an IBM Personal Computer, including the concept of memory and storage. It explains the importance of software, covering the three most common types, and introduces add-ons and accessories, such as color displays, modems, and plotters.

AST-020	3/4"(U-Matic), ½"VHS, Beta	$195
	Additional Guides (over 10)	$1.00 ea.

□ **ATI Training Power: How to Use Your IBM PC**

Components: Two training diskettes, user's handbook

The interactive simulation diskette guides the first-time user in: Starting up the IBM PC, using the keyboard, working with IBM DOS, copying files, protecting disks, using list and display, formatting a disk, and shutting the system down. The second diskette presents a sample of popular applications software, such as Lotus 1-2-3, dBase II, MBASIC, and many others. The handbook is a supplemental reference tool, providing definitions and simplified instructions.

ATI-021 $75

□ **PC Plus**

Components: Training diskette, user s guide
This program presents the use of the IBM PC, covers computing fundamentals, and adds an introduction to major applications. Users learn hardware components and how they work; the PC keyboard and its operation; how records and files are stored; the major type of applications software--word processing, electronic spreadsheets, database management; and an overview of computer terms. Available for the IBM PC DOS 1.1(64k) IBM PC DOS 2.0(96k), and IBM PC XT DOS 2.0(96k). (Requires one double-sided diskette drive and a monochrome or color monitor.)

QED-022 IBM PC, XT $59.95

Operating Systems/ Programming Languages

□ **DOS Plus**

Components: Training diskettes, user's guide
DOS Plus presents DOS versons 1.1 and 2.0. Users learn to load DOS and use DOS commands; list all or part of the disk directly; format a new diskette; copy files and diskettes; copy DOS onto a new diskette; check available space on a diskette; delete files from a diskette; and rename files.
Available for the IBM PC DOS 1.1 (64k) IBM PC DOS 2.0 (96k), IBM PC XT DOS 2.0 (96k). (Requires one double-sided diskette drive and a monochrome or color monitor.)

QED-023 IBM PC, XT $59.95

□ **Cdex Training for IBM PC-DOS**

Components: Two training diskettes, reference guide
This advanced program on the IBM PC operating system includes such topics as DOS concepts and structure overview; preparing and copying diskettes; file operations and disk files; tree-structures directories and disk files; using the fixed disk system; managing printing operations and other devices; and advanced DOS commands and batch files.

CDX-024 $69.95

□ **ATI Training Power: Teach Yourself PC-DOS**

Components: Training diskette, handbook
This interactive program guides the learner step-by-step through PC-DOS, including how to use PC-DOS to monitor the system; determine available disk space; erase, save, rename, copy, and edit files; work with directories; use the DOS text editor, plus advanced topics such as recovering a damaged file and multitasking.

ATI-025 IBM-PC $75

Business Applications Training

Electronic Spreadsheets: Lotus 1-2-3

△ □ **Learn-PC Video Systems Introduction to Lotus 1-2-3**

Components: Color videotape (2 hours), diskette, guidebook, command chart
This program is a complete training system that cost-effectively trains entire departments. The program is self-paced-- ideal for both beginners and experienced computer users. The videotape clearly shows and explains what keys to press and what appears on the computer monitor. After watching the videotape, participants complete the same procedures on their computer using the Learn-PC demonstration diskette and guidebook. Participants master the spreadsheet, graphing, database, and printing features of 1-2-3 and upon completion are able to use Lotus for their own applications.

LPC-026	3/4" U-Matic	$595
LPC-027	½" VHS	$495
LPC-028	Beta	$495

○ **How to Use Lotus 1-2-3**

Components: Audiocassettes, lesson summary
The listener learns how to build a complete worksheet model, using all major commands and special function keys; then to create a database and apply the sorting, selecting, and other capabilities of Lotus, working with both text and numeric data. The program can be used with any installation of Lotus 1-2-3.

FLS-029 $75

△ **1-2-3: Introduction to the Integrated Spreadsheet**

Components: Videotape, five videoguides
This program leads the user step-by-step through the creation of a Lotus 1-2-3 spreadsheet. First it covers the basics – the Lotus control panel, menu selection, and entering labels, numbers, and formulas – then the program moves to the command structures, such as changing column widths, using the anchor cell and the free cell in range commands, moving and centering labels, formatting the display. Finally, naming and storing the worksheet on disk, and printing it, are explained.

AST-030 3/4", ½VHS, Beta $195

△ 1-2-3: Advanced Features

Components: Videotape, five videoguides
Designed for the experienced Lotus 1-2-3 user, this videotape covers the use of keyboard macros, advanced graphics, multiple spreadsheet consolidation, and data management.

AST-031 3/4", ½" VHS, Beta $195

□ Putting 1-2-3 to Work

Components. Training diskette, eight preformatted templates, performance checklists, self-study handbook

This complete training system takes the learner beyond a simulation of the application or demonstration of software features. The user learns to prepare electronic worksheets, use advanced worksheet capabilities, build graphics displays, create and modify a database, and then to create, combine, save and print worksheets, graphics, and database. These step-by-step instructions are followed by the use of preformatted 'templates' that can be tailored to individual needs.

NTS-032 IBM PC, XT $95

General Electronic Spreadsheet Analysis

○ Fliptrack Learning Systems Audio Courses

Components (each program): Four audio cassettes, lesson summary

These programs introduce the user to the commands involved in taking full advantage of these best-selling financial packages. The user is guided step-by-step through the program and shown how to create, modify, and manipulate spreadsheets.

FLS-033	How to Use Visicalc	$75
FLS-034	How to Use Supercalc	$75
FLS-035	How to Use Multiplan	$75

Word Processing/Keyboarding

△ MultiMate: Introduction to the Word Processor

Components: Videotape, five videoguides

This program is designed to introduce the learner to the concepts and applications of word processing. Topics include: Creating, changing, copying and deleting documents; inserting, moving, copying, and deleting words, paragraphs and pages; merging documents; and formatting. It also explains automatic search and replace, math functions, how to print selected pages, and creating mailing lists with form letters.

AST-036	3/4" U-matic, ½"VHS, Beta	$195

○ Micro Instructional Audio Tutorials

Components: Audio cassette, tutorial

These programs cover the basic functions of the following word processing programs.

MII-037	Spellbinder-IBM	$49.95
MII-038	Volkswriter-All Systems	$49.95
MII-039	Volkswriter-DOT	$49.95
MII-040	Wordperfect-Victor	$49.95
MII-041	WordStar-IBM PC	$49.95
MII-042	WordStar-Apple	$49.95
MII-043	WordStar-Osborne	$49.95
MII-044	WordStar-Z90/Z100	$49.95
MII-045	WordStar-Xerox	$49.95

□ Microcomputer Keypad Operations

Components: Training diskette

This program contains seven 25-minute lessons. The first four cover keyboard presentation and skill development instruction for a standard 10-key numeric keypad of a microcomputer (or calculator). Two sets of additional drills increase "touch" operation skill, and the last lesson consists of a series of applied data entry/editing activities using common business forms.

SWP-046 IBM PC or Apple IIe $59.50

□ Alphabetic Keyboarding

Components: Two training diskettes

This program consists of eighteen 25-minute lessons which cover the keyboard introduction, including the most frequently used punctuation keys. All instructions, technique graphics, and practice copy appear on the screen to guide the user. A variety of skill-building drills and feedback tactics assure maximum learning and skill development.

SWP-047 IBM PC or Apple IIe $89.50

□ ATI Training Power: Word Processing with Microsoft Word and MultiMate

Components (each system): Training diskette, user's handbook

ATI's word processing programs teach the basic functions of the word processing system in a self-paced, interactive format. Each covers starting up the word processing software; creating, saving, and printing a document; inserting, deleting, and restoring text; plus features unique to each, such as using the windows in Microsoft Word. The user's handbook contains simple instructions on all commands in the system.

ATI-048	Microsoft Word CP/M	$75
ATI-049	Microsoft Word IBM PC	$75
ATI-050	MultiMate CP/M	$75
ATI-051	MultiMate IBM PC	$75

Database

△ dBASE II: Introduction

Components: Videotape, five videoguides

This program guides the user step-by-step through creating a database; adding, changing, and deleting records; using database query commands with logical condition statements to select certain records; and building an index to sort the records. It also shows how to change the database structure without losing data.

AST-052	3/4" U-matic, ½"VHS, Beta	$195

○ **Micro Instructional Audio Tutorials**
Components: Audio cassettes, tutorial
These programs introduce the new user to applications programs in a simple, step-by-step approach to learning commands, recordkeeping, and building data fields.

MII-053	Condor I	$49.95
MII-054	Condor 3	$59.95
MII-055	DATASTAR	$49.95
MII-056	dBASE II	$49.95
MII-057	dBASE II Advanced	$69.95
MII-058	DBMaster	$49.95
MII-059	Easy Filer	$49.95
MII-060	Generation Station	$99.95
MII-061	Perfect Filer-All Systems	$49.95

□ **ATI Training Power: Accounting**
Components (each program): Training diskette, user's handbook
ATI's Accounting Series covers all features of the following programs in an interactive, self-paced tutorial diskette. The handbook is a reference tool containing the program's commands

ATI-062	Peachtree Sales Invoicing: CP/M	$75
ATI-062A	Peachtree Sales Invoicing: IBM PC	$75
ATI-063	Peachtree Inventory Control: CP/M	$75
ATI-063A	Peachtree Inventory Control: IBM PC	$75
ATI-064	Peachtree List Manager: CP/M	$75
ATI-064A	Peachtree List Manager: IBM PC	$75
ATI-065	Peachtree Accounts Payable: CP/M	$75
ATI-065A	Peachtree Accounts Payable: IBM PC	$75

CAI for Staff Development

□ **Personal Financial Planner/Personal Financial Manager**
Components (each program): Two training diskettes, comprehensive user's manual
The Personal Financial Planner and the Personal Financial Manager will save money, time, and aggravation for the person whose income exceeds $35,000 per year. Based on the well-received Touche Ross Guide to Personal Financial Management, these programs bring a professional expertise to financial planning. The Personal Financial Planner includes nine functions: Net Worth Statement; Income and Expenditures; Investment Analysis and Strategies; Tax Planning; Retirement Planning; Estate Planning; Education Financing; Insurance Analysis; and Personal Data. The Personal Financial Manager also includes nine functions: Checking Account Management; Credit Card Accounts; Assets/Liabilities; Budget Tracking; Check Printing; Double Entry Bookkeeping; Account Status; Tax Reports and Codes; Transactions Maintenance. These programs come with a built-in "help" display as well as a toll-free hot-line number.

PHC-066	Personal Financial Planner IBM PC	$200
PHC-067	Personal Financial Manager IBM PC	$200

□ **Writing Is Thinking**
Components: Training diskette, lab book, user's guide
This program uses the computer to aid writers in organizing their thoughts and developing writing skills necessary to express ideas in a logical, orderly manner. The program is divided into four sessions, approximately 45 minutes each.
"Analyze the Problem" presents planning, which includes brainstorming and writing opinions as the basis of all papers.
"Develop the Structure" includes selecting the best structure and outlining the main thought pattern of the paper. "Develop the Structure Part II" covers the actual writing, which is made up of paragraphing and writing supportive facts and examples.
"Evaluate the Design" encourages revising and editing.

KAP-068	IBM PC	$175

□ **Zig Ziglar Motivational Software**
Components (each program): Training diskette, workbook
These programs combine the best-selling Zig Ziglar books with a software package designed to make the user think and be led into action. These highly entertaining and graphically oriented programs are easy to use and totally menu driven.

TOI-069	See You at The Top	$89.95
TOI-070	I Can	$89.95
TOI-071	The Goal Planner	$89.95

□ **Winning Strategies in Selling**
Components: Training diskette, workbook
Designed to advance selling skills, this training tool can turn the computer into a learning center. The learner becomes competent and confident and a winner in selling.
Based on the book by Dallas Cowboy star Roger Stauback, this program moves through twelve stages of successful selling and tracks progress. Areas include goal setting, action planning, self-improvement, prospecting.

TOI-072	IBM PC or Apple II	$89.95

☐ **Free Enterprise**

Components: Diskette, user's manual, 50 decision sheets, 50 record sheets

This business simulation, based on the IBM Management Decision-Making Laboratory, involves participants in running companies making the same type of product. Up to six individuals or teams can participate; or one or more participants can interact with computer players simulating competition among up to six companies. The measure of success can be stock price, overall profit, or some other agreed-upon criterion.

SRA-073	Apple II or IBM PC	$100

☐ **Bank President**

Components: Diskette, user's guide

In this educational simulation, the user becomes the president of a large commercial bank and makes the strategic decisions involved in running a financial empire, setting loan and deposit interest rates, determining employee salaries, issuing and redeeming stocks and bonds, and managing investment portfolios – playing alone, against the computer, or in competition with others

LEE-074	IBM PC	$75

☐ **Psycomp Self-Help Software**

Components: each program consists of two diskettes and user's guide

Psycomp programs offers a progressive series of "sessions" in which common, self-defeating thoughts are examined and clarified. Then, by example, the user is guided through practical and easy-to-understand ways to make the desired changes. Unlike a book's approach, these programs create a level of user interaction with the subject matter that personalizes what is being learned, in a rapidly effective, experiential manner. Extremely easy to use.

PSY-075	Handling Relationship Problems	$89
PSY-076	Coping with Stress IBM PC or Apple IIe	$89

Thoughtware Management Training Programs

☐ Components (each program): Training diskettes, program guide

Designed to fit either an individual or a group situation, Thoughtware programs can be used as a standalone training program or as a supplement to traditional group-based programs.

Thoughtware can be used over and over again as new situations arise; the programs are ideal for individuals in management positions, small business owners, or corporate training departments.

These diagnostic programs are designed to assess an individual's personal management skills, organizational effectiveness, and personal style of interaction. After each unit of assessment, users plan for their training needs.

Concepts are presented on the computer screen, color highlighting the key points and examples. Users are questioned and their responses evaluated; the objective is to enable them to translate what they have learned on the computer to their own unique job situation. The programs can be used at multiple levels within the organization.

Available for the IBM PC and compatibles [DOS 1.1 (64k) w/color graphics card], Apple II, IIe.

Management Diagnostic Series

Assessing Personal Management Skills

Assessing Personal Management Skills is a comprehensive self-assessment of an individual's personal attitudes, behavior, and conceptual understanding as they relate to his or her effectiveness as a manager. The program assesses how well an individual manages people to achieve results, sets goals and objectives, organizes work, and gives performance appraisals. It also assesses how effectively an individual organizes time, manages stress, conducts meetings, and solves problems.

THW-077	$350.00

Evaluating Organizational Effectiveness

Evaluating Organizational Effectiveness allows an individual and up to 25 colleagues to evaluate the effectiveness of their organization. The program focuses on such areas as productivity improvement priorities, organizational climate, organizational culture, job satisfaction, and working conditions. The program helps the development of an organizational improvement program.

THW-078	$350.00

Understanding Personal Interaction Styles

Understanding Personal Interaction Styles helps an individual and up to 5 colleagues at a time to develop a better understanding of each other's personal interaction styles in both the cognitive and affective domains. Improving the understanding of respective interaction styles will in turn lead to more effective teamwork and increased productivity.

In each of the diagnostic programs, we recommend appropriate training programs to improve management skills and/or organizational effectiveness.

THW-079	$350.00

Management Training Series

Leading Effectively
Leading Effectively has been designed to help managers improve their effectiveness as leaders.
The program defines leadership and shows how leadership power derives from formal authority and influence. It gives participants an opportunity to assess their own management style and to compare it to the self-perception of other managers nationally or to the perception of the work group they supervise. And finally it asks participants to translate what they have learned about effective leadership to a leadership situation they currently face.
THW-080 $450.00

Motivating to Achieve Results
Motivating to Achieve Results provides an introduction to basic motivation theory and establishes the relationship between motivation and achieving organizational results. Individual wants and needs as motivators are examined, as are the organizational elements which affect motivation.
A motivation model is presented which helps clarify the relationship between individual and organizational motivation, and focuses on the manager as the link between personal motivation and organizational motivation. The model identifies specific areas which a manager can influence to improve the motivation of others.
THW-081 $450.00

Defining Goals and Objectives
Defining Goals and Objectives is designed to help managers distinguish between long-term goals and short-term objectives, assess the effectiveness of the objectives, check their own attitudes toward defining goals and objectives, and plan for setting better goals and objectives for the work group. It also includes a simulation designed to demonstrate the value of objectives.
THW-082 $450.00

Improving Employee Performance
Improving Employee Performance is designed to help managers identify, analyze, and solve performance problems and to conduct performance discussions with subordinates. A specific step-by-step approach to analyzing performance problems is used. A performance improvement model is introduced with exercises on identifying and analyzing performance problems. Solving and discussing performance problems are also covered, with exercises on giving constructive feedback and handling defensiveness.
THW-083 $450.00

Performance Appraisal
Performance Appraisal focuses on the formal review aspects related to employee performance. As such it also complements the Thoughtware program on Improving Employee Performance. It deals with the evaluation of results. Legal aspects of performance appraisal are discussed. The user takes part in a simulated performance appraisal discussion.
THW-084 $450.00

Managing Time Effectively
Managing Time Effectively deals with time management for individual managers. Time management problems are presented followed by a self-assessment where participants identify their strengths and weaknesses in their use of time.
Individuals are shown how to set priorities, keep a time log, and then plan for how to use their time more effectively.
THW-085 $450.00

Conducting Successful Meetings
Conducting Successful Meetings presents basic principles to help managers improve the effectiveness of their meetings. Participants learn what the characteristics of effective meetings are and when is a good time to call a meeting. The roles people assume during a meeting are reviewed, and two checklists enable participants to plan and conduct meetings more effectively and get the follow-up necessary for the desired results.
THW-086 $450.00

AST	Anderson Soft-Teach
ATI	American Training International, Inc.
CDX	Cdex Corporation
FLS	FlipTrack Learning Systems
KAP	Kapstrom, Inc.
KNO	Knoware
LEE	Lewis Lee Corp.
LPC	Learn-PC Video Systems
MII	Micro-Instructional, Inc.
NTS	National Training Systems
PHC	Prentice Hall
PSY	Psy Comp
QED	QED Information Software, Inc.
SRA	SRA, Inc.
SWP	Southwestern Publishing
THW	Thoughtware
TOI	Tributary, Inc.

○ = Audiotape
△ = Videotape
□ = Diskette

App. C:
Training Periodicals

APPENDIX C: TRAINING PERIODICALS

- There are, as yet, no publicly available periodicals devoted to the subject of end-user training. There are several, however, which address general training and each of these covers some aspects of end-user training in each edition.

  - CRWTH NEWS for Better Training
    CRWTH Computer Coursewares
    613 Wilshire Blvd., Suite 200
    Santa Monica, CA 90401
    (800) 282-2372

  - DATA TRAINING
    38 Chauncy Street
    Boston, MA 02111
    (617) 542-0146
    (Data Training sponsors conventions on computer literacy.)

  - TRAINING
    Training Magazine
    731 Hennepin Avenue
    Minneapolis, MN 55403
    (612) 333-0471

  - TRAINING AND DEVELOPMENT JOURNAL
    American Society for Training and Development
    600 Maryland Avenue SW
    Washington, DC 20024
    (202) 484-2390
    (ASTD also sponsors a conference each year.)

  - TRAINING NEWS
    38 Chauncy Street
    Boston, MA 02111
    (617) 542-0146

- In addition, Personal Computing, PC Buyers Guide, Infoworld, and Popular Computing, include sections which evaluate computer-based training packages.

EXHIBIT II-1

U-ETR

WHY TRAIN AND WHAT ARE THE ISSUES?

- Goals
  - Computer Literacy
  - Skill
  - Adaptation
- Benefits
  - Reduce Learning Curve
  - Achieve the Benefits of the Technology
- Issues
  - Varying Users/Varying Equipment
  - Who Provides, Where and What Technique?
  - What are the Cost Considerations?

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EXHIBIT II-2

IDENTIFY

DEFINE THE AUDIENCE AND THEIR REQUIREMENTS

End User by Organizational Level	BENEFIT FROM		
	Computer Literacy Training	Skills Training	Adaptation Training
Executives	X		
Managers	X	X	
Professional/ Technical		X	X
Secretarial/ Clerical		X	X

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EXHIBIT II-3

SUCCESS MEASURES FOR TRAINING

- Let the User Define Needs and the Measure of Success
- Examples
  - Time to Competency
  - Reduced Error Rates
  - Increased Typing Speed
  - Reduced Time to Prepare Budget
- Assign a Value to the Measure

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TRAINING SOURCE EVALUATION

	Computer Literacy Training	Skill Training	Adaptation Training
Manufacturer	M	L	L
Training Vendors	H	M	L
In-House Resources	L	M	H

Effectiveness Rating:

H - High
M - Medium
L - Low

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EXHIBIT II-5

TRAINING TECHNIQUE EVALUATION

	Computer Literacy Training	Skill Training	Adaptation Training
One-On-One	L	M	H
Workshop	H	M	L
Technology-Based	L	H	L
Adaptive Techniques	L	H	H

Effectiveness Rating:

H - High
M - Medium
L - Low

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EXHIBIT II-6

TRAINING COST CONSIDERATIONS

- Employee Time
- Travel Costs
- On-Site -- Space, Facilities, Instructor and Support Personnel Salaries and Benefits, and Equipment
- CBT -- Hardware, Software and Communication Costs
- Other Media-Based -- Special Equipment and Facilities

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EXHIBIT II-7

ESTABLISH A TRAINING STRATEGY

- Perform a Needs Assessment
- Define Success Measures for Training
- Use Manufacturer-Supplied Training to Train a Trainer
- Develop an In-House Training Resource and Assign an End-User Training Manager
- Establish an Information Center Training Facility

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EXHIBIT II-8

CHARACTERISTICS OF AN EFFECTIVE TRAINING APPROACH

- Targetted to Meet Specific Company Needs and Goals
- Tied to the Company Way of Doing Business
- Uses Actual Cases and Real Problems
- Consists of On-Going Training with Frequent Fine-Tuning
- Involves Managers as Trainers
- Helps the Employees Excel

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EXHIBIT IV-1

INFORMATION HANDLING REQUIREMENTS BY FUNCTION

	DOCUMENT PROCESSING	NUMERICAL ANALYSIS	INFORMATION RETRIEVAL/ MANIPULATION	COMMUNICATIONS	GRAPHICS
Human Resources	Policy Manuals Management Reports & Plans	Salary Analysis Trend Analysis Statistical Reports	Personnel Files Applicant Files Regulations & Rules Mailing Lists	Applicant Letters Correspondence & Names	Organization Charts Management Presentations
Controller	Financial Reports & Plans	Modeling Forecasting Statistical Analysis	External - Dun & Bradstreet, Dow Jones, Market & Economic Services Internal - Corporate & subsidiary records	Correspondence & ~~Names~~ MEMOS Communications to & from Subsidiaries	Historical Trends Ratios Comparisons (Budget to Actual, etc.)
Marketing	Reports and Plans Activity Reports Product Literature	Market & Product Analysis & Trends Forecasting Profit and Loss per Product/ Market	Historical Financial Data Customer & Sales Force Data Sales, Costs, Inventory External Data	Product Literature to Customers & Sales Reps Technical Dispatches Credit Letters Correspondence & Memos Communications to & from Customers	Customer and Management Presentations
Legal	Contracts Litigation Reports Interrogations Pleadings	-	Case Files External Data (Lexis) Tracking Contract Labor Charges Working Files	Correspondence & Memos to & from Clients, Regulatory Agencies	-
Real ESTATE	Loan Documents Management Reports & Plans	Cash Flow Projections Mortgage & Portfolio Analysis Pay Schedules	Asset Files	Correspondence & Names Facility Authorization Forms	Trends & Comparisons on Cash Flows

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EXHIBIT IV-2

NEED FOR INFORMATION HANDLING TOOLS AND TRAINING BY FUNCTION

	WORD PROCESSING	SPREADSHEET	DATA BASE MANAGEMENT	COMMUNICATIONS	GRAPHICS
Human Resources	H	L	H	M	L
Controller	L	H	M	M	H
Marketing and Sales	M	H	M	H	M
Legal	H	L	H	M	L
Real Estate	M	H	L	M	L

Rating: H = High
M = Medium
L = Low

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EXHIBIT V-1

NEEDS ASSESSMENT PROCESS

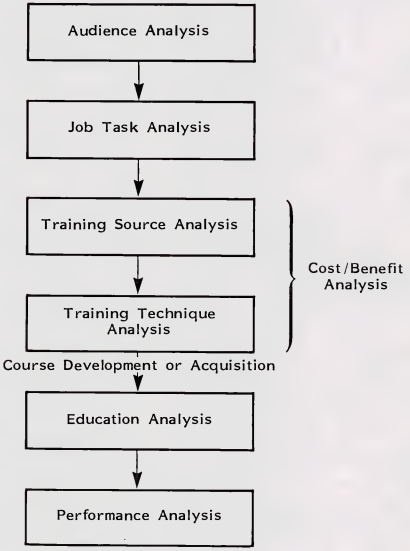

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EXHIBIT V-2

SKILLS INVENTORY

Name: _____ Dept.: _____ Years on Job _____

Present Job Title: _____ Grade: _____ Yrs. Presnt. Job ____

Please check the appropriate box for a "yes" answer.

Skills	Experience	How Long?	NO EXPERIENCE: But Interested	But Presently Training	But Training Completed
Secretarial					
Typing (Speed _____)	☐	____	☐	☐	☐
Word Processing					
Indicate systems used:					
_____	☐	____	☐	☐	☐
_____	☐	____	☐	☐	☐
Computing					
Data entry on CRT	☐	____	☐	☐	☐
Personal computer					
Indicate systems used:					
_____	☐	____	☐	☐	☐
_____	☐	____	☐	☐	☐
Software on PC					
Word processing	☐	____	☐	☐	☐
Spreadsheet	☐	____	☐	☐	☐
Graphics	☐	____	☐	☐	☐
Data base	☐	____	☐	☐	☐
Other (list)					
_____	☐	____	☐	☐	☐
_____	☐	____	☐	☐	☐
TSO	☐	____	☐	☐	☐
CMS	☐	____	☐	☐	☐
Programming (list langs.)					
_____	☐	____	☐	☐	☐
_____	☐	____	☐	☐	☐
Accounting Areas					
Accounts Payable	☐	____	☐	☐	☐
Accounts Receivable	☐	____	☐	☐	☐
General Ledger	☐	____	☐	☐	☐
Personal Areas					
Benefits	☐	____	☐	☐	☐
Compensation	☐	____	☐	☐	☐

Other:

Please indicate below any other skills and/or outstanding accomplishments.

_____

_____

Also list skills or areas of your job for which you would like training:

_____

_____

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EXHIBIT V-3

TRAINING COST WORKSHEET

Estimated Time to Proficiency	_____
Costs:	
1. Employee time cost	_____
2. Travel costs	_____
3. Space and facilities	_____
4. Instructor and support personnel	_____
5. Equipment	_____
6. Training package cost	_____
Total costs:	_____

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EXHIBIT V-4

CAPITAL/LABOR COSTS
BY TYPE OF TRAINING

TRAINING TYPE	CAPITAL	LABOR COSTS
One-on-one or instructor-led workshops	Low Technology	High
Instructor-led hands-on workshops	High Technology ~~Labor~~	High
Computer-based and media-based training	High Technology ~~Labor~~	Low
Manual-based Training	Low Technology ~~Labor~~	Low

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EXHIBIT VI-1

PROS AND CONS OF TRAINING SOURCES

	PROS	CONS
Manufacturers	Knowledgable about their product. Have resources to develop skill-oriented training. Good for "training the trainers".	Cost to attend increased by travel expenses. Not appropriate for developing application skills. Workshops not necessarily adaptive to individual learning pace and needs. DIS and WP system training is mainly manual-based.
Training Vendors	Knowledgable in training techniques. Effective for computer literacy and initial skills development. Probably least expensive for value on short-term basis.	Cost to attend increased by travel expenses. Not appropriate for developing application skills. Not necessarily available on on-going basis.
In-House Resources	Training staff understand corporate culture, needs and applications. Available on on-going basis Probably least expensive for value on long-term basis. Develops peer groups.	Staff are not professional trainers. Few career opportunities for the trainers.

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EXHIBIT VI-2

EVALUATION OF EFFECTIVENESS OF TRAINING SOURCES FOR ORGANIZATIONAL LEVEL

Organizational Level	TRAINING SOURCE								
	MANUFACTURER			VENDOR			IN-HOUSE		
	Computer Literacy	Skill	Adaptation	Computer Literacy	Skill	Adaptation	Computer Literacy	Skill	Adaptation
Executive	H	L	L	H	H	M	L	M	M
Manager	M	M	L	M	M	L	L	M	M
Professional/ Technical	L	M	L	M	M	L	M	H	H
Clerical/ Secretarial	L	H	L	L	L	L	M	H	H

Rating:
H = High
M = Medium
L = Low

BACKUP
CALLS
LEGEND
"EFFECTIVE-
NESS
RATING

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EXHIBIT VII-1

ADVANTAGES/DISADVANTAGES OF TRAINING TECHNIQUES

	ADVANTAGES	DISADVANTAGES
One-on-one	Can be tailored to individual needs Interactive	Expensive Can turn into a demonstration only with no hands-on.
Workshop	Good for larger number of trainers Can be customized Minimal production costs. Interactive.	Quality of instructor is critical. Scheduling must be coordinated. Travel expenses. Does not address individual needs.
CBT	Hands-on builds skills and confidence Adaptive to each student. Cost-effective No scheduling problems.	Generic in nature. Can be boring. Not interactive. Expensive to develop in house.
Other Media	Can be customized. Adaptive to each student if self-paced.	High start-up costs. Additional equipment necessary. May not include hands-on.

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EXHIBIT VII-2

EFFECTIVENESS OF TRAINING TECHNIQUES IN MEETING GOALS

TRAINING TECHNIQUE	GOAL		
	COMPUTER LITERACY	SKILL	ADAPTATION
One-on-One	L	M	H
Workshop	H	M	L
Computer-based Training	L	H	L
Multimedia	M	H	L
Peer Training	L	H	H
Learning Center	L	H	H

Rating:

H = High
M = Medium
L = Low

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EXHIBIT VII-3

EFFECTIVENESS OF TRAINING TECHNIQUES FOR ORGANIZATIONAL LEVEL

ORGANIZATIONAL LEVEL	TRAINING TECHNIQUE					
	ONE-ON-ONE	WORKSHOP	CTST	MULTI-MEDIA	PEER TRAINING	LEARNING CENTER
Executive	H	M	M	L	H	L
Manager	M	H	M	M	H	L
Professional/ Technical	M	H	H	M	H	H
Clerical/ Secretarial	L	M	H	M	H	H

RATING:
H= HIGH
M= MEDIUM
L= LOW

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EXHIBIT VIII-1

NEEDS ASSESSMENT CHECKLIST

_____ 1. Define end-users, their skill characteristics and level.

_____ 2. Define required skills.

_____ 3. Define training requirements (computer literacy, skill, or adaptation).

_____ 4. Define success measures.

_____ 5. Assess sources (manufacturers, training vendors, or in-house).

_____ 6. Assess techniques (traditional, technology based, or adaptive).

_____ 7. Perform cost comparison.

_____ 8. Validate selection with a representative from the target audience.

_____ 9. Perform follow-up/on-going assessment.

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